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Editorials:

The Decision to Use the Bomb

Mr. Stimson's article, reprinted in this issue, gives the authoritative history of the decision to reveal atomic power to mankind by the obliteration of two large cities. This choice, in preference to more specific military objectives (not to speak of uninhabited areas) was based on the conviction that only enormous destruction of property by blast and fire, and spectacular civilian casualties were likely to break the Japanese will to continue the war, thus saving millions of Allied and Japanese lives. (As pointed out by the New York Times editorialist, Mr. Stimson is aware of the similarity between this argument and Hitler's justification of brutal warfare, but believes that the use of weapons of mass destruction is the essence of modern war and cannot be avoided unless war itself is abolished.)

Mr. Stimson reveals that the use of the bomb had the support of a panel of four scientific advisers. He also mentions briefly a memorandum, submitted to this panel, which "questioned the use of the bomb at all." The reference is to the document reprinted in this BULLETIN on May 1, 1946. Its authors argued that the saving of lives in Japanese war may be outweighed by the loss of American security in a world where atomic weapons have become accepted means of warfare. The rejection of this memorandum by the panel shows that the scientists were of divided mind, but the views presented in the memorandum were not those of a small group, but were shared by a considerable part of the "rank and file" of Project scientists, and by many of its leaders—Laboratory Directors, Division and Section Chiefs.

Reading Mr. Stimson's report, we appreciate the heavy responsibility which rested on him and his advisers. They alone had access to all the facts—the plans for invasion, the estimates of probable casualties, the number and expected efficiency of our atomic weapons. Their conclusions were based on deep conviction as to what is best for the country. But if our readers turn back to May 1 issue of the BULLETIN, they will certainly find that many of the calamities against which the memorandum has warned, have either already come to pass, or become dark clouds on the horizon of American future.

Those who decided to use the bomb considered the immediate task of terminating the war with least casualties as paramount. The authors of the memorandum, free of this responsibility, could focus their attention on the future beyond the V-J day. For Mr. Stimson, the atomic bombs were "a new and tremendously powerful explosive, as legitimate as any other deadly explosive of modern war." The authors of the

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The Atomic Secrets

Mr. Lilienthal told the Senate that the worst "breach of atomic security" was the Smyth report. It has been difficult to stop minor "leaks" because of the feeling that after the release of the Smyth report there can be no reason why this or that single fact, having no obvious relation to the bomb, should await the red tape of official declassification. Mr. Lilienthal's statement has been represented as denunciation of scientists for not keeping "atomic secrets." But Mr. Lilienthal made no such accusation. How could he? The Smyth report was prepared under the instructions of the Manhattan District and approved by General Groves. The suggestion attributed to Mr. Baruch that the Army was "lambasted" into its publication by the scientists is ridiculous. The scientists were dumbfounded by the sudden publicity given to the industrial aspects of the atomic bomb project. Furthermore, they were not interested in it. The firms which have participated in the immense enterprise, may have had an understandable desire to publicize their achievement, and the Manhattan District was anxious to show what it did with two billion dollars; but the scientists were and are indifferent to the revelation of technological aspects of the production of fissionable materials and manufacture of bombs. They greeted the Smyth report as a portent of resumption of free publication of the result of scientific research—a practice which is considered by a vast majority of scientists as indispensable, not merely for their careers (as suggested to the Senate Committee by Mr. Pike) but for the advancement of science as a whole and thus for the well-being of the nation. This attitude has nothing to do with internationalism, still less with pro-Soviet leanings. True, the example of fission has shown how short may be the path from a discovery in pure science to a weapon in war; but to attempt to clamp secrecy on certain fields of science in the hope of monopolizing such development, would be ill-conceived and dangerous. Nobody can presume to know what discovery in physics or biochemistry may bear the makings of a super-bomb or of a biological weapon of terrifying efficiency. If we "lean backwards" (as suggested by Mr. Pike) in suppressing scientific publications because of their potential military implications, we will disrupt our own progress, with dire effects for our peacetime advancement as well as for our military efficiency.

To delay the making of atomic bombs by other countries without impeding our own progress, it would have made sense to keep the very existence of bombs secret, by not using them in Japan. After Hiroshima, it would have made sense not to reveal what materials were used in the bombs and what methods

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General Bradley Calls for International Control — — Even at the Expense of National Sovereignty

[The following are excerpts from an address delivered by General Omar N. Bradley, Veterans' Administrator, at the "Report from the World" meeting on January 10, 1947 jointly sponsored by "Time" magazine and Cleveland Council on World Affairs.]

SCIENCE HAS AT last irrevocably stripped the American people of the treacherous notion that we can ever again find safety in the storm-cellars of isolationism. Our own atomic bombs have torn the roofs off those cellars. Long-range air weapons could turn them into graves.

Unless we walk this earth in company with other men from other nations, any refuge that we seek alone will become our tomb.

The decision of our American people to assert their strength and leadership in world affairs has produced a bi-partisan foreign policy of survival.

There is no alternative to the course we have chosen. The only partisanship left to us is the choice of life or death.

The American people have committed the United States to United Nations. They see in it an honest chance to avert war and keep the peace. For we are resolved that the United States shall never again suffer the blind indecision that resulted in two world wars. It was miscalculation of our position that tempted aggressor nations.

Twice they took a chance on our non-involvement in wars which they provoked. We have suffered enough through both of these wars to know that non-involvement in peace means certain involvement in war. For that reason, I feel that I can safely say to you—this time, the United States has come into world affairs—to stay!

In our effort to escape another war, we must not start a peace on the negative premise of fear—the fear of another war.

Today that fear of war is provoked by new and scientific weapons of war. Although we can ignore the phony fears of imminent conflict so often incited by vicious talk, we dare not ignore the real threat of these new weapons to a lasting peace.

Stimulated by the need for offensive weapons in this second world war, science has unlocked new secrets of mass destruction in the atom bomb and in other deadly weapons. Because those secrets have unmistakably revolutionized the character of war itself, they have also confounded the problem of how we shall keep the peace.

The discovery and stockpiling of these new weapons can give no nation a lasting assurance of safety. The capacities of science are not only unlimited, but they are also available to the many nations throughout the earth.

In this new age of science, the technology of offense will always be superior to the weapons of defense. Science has, therefore, unwittingly allied itself on the side of aggressors. New weapons with their potential capacity for knock-out blows offer an invitation to attack.

We can be reasonably certain that we shall find no adequate security against long-range rocket bombardment in the creation of buffer states and in the acquisition of island bases. We have finished the last great war where natural barriers can serve as effective defenses.

We shall find no adequate security in the development of new weapons; science will forever be devising superior ones.

We shall find no permanent and adequate assurances of safety in the longtime maintenance of huge national armies and navies.

And we shall find no thoroughly adequate security by pledging or pooling our military strength in United Nations.

For although United Nations is partly a military organization—relying on weapons for the enforcement of peace, it is still limited in the prevention of major wars. This results from the lopsided distribution of military strength today and from the reservation of vote powers in the Security Council.

When the United States submitted to United Nations its proposal for international control of the atom bomb, it devised a pattern for what may become the only adequate guarantee of security among nation states. If such a plan proved effective in control of the atom bomb, we might ask if it would not also work on all weapons of mass destruction.

And if eventually, it were applied with success to all other armaments, international inspection and control could — in time—provide nations with the adequate security guarantees they would require for safe reduction of their armies and navies.

Without this assurance, the United States has no choice but to keep its arms and to point its research toward the development of new weapons that may offer us at least a partial measure of armed security.

If nations contend that international inspection and control would infringe on their sovereign rights, I can only reply that it is a cheap price to pay for peace. Until all nations submit their armaments to the findings of free world opinion, they must expect to live by the intimidation of arms and the inevitable threat of war.

It is time for us—and for every other nation—to strive for morality among men that will match the responsibilities with which science has confronted them.

I have not come here tonight as my government's spokesman on the foreign policy of the United States. Nor have I come as a general with authority to speak for the Army. I have come to you simply as one American soldier fearful of the tragedy another war could bring to the world.

As Administrator of Veterans Affairs, I am engaged in the huge humanitarian undertaking of that agency of government. But day after day as I enter our building, I cannot forget that were it not for wars it would not be there. In spite of its inspiring objectives, the Veterans Administration is still a symbol of the pain and suffering that war has brought to American homes.

I hope the world will someday have learned enough to put us out of business.

How Dangerous Are Atomic Weapons?. . . *by Edward Teller*

DURING the past war scientific methods and personnel have been used extensively in inventing, developing, and producing new types of weapons. This fact is new. In the First World War limited use was made of new inventions. Gas warfare and the tank are two outstanding examples. But the purely scientific effort involved in either of those inventions was not very great and the men in charge of military operations were slow in adopting the new developments.

In the Second World War a great variety of startling scientific achievements were put to use by the Americans, the British, the Germans, and the Russians. We may mention the fast, penetrating metal jets (bazooka), the radar, the rockets, including the jet planes and robot planes, and finally the atomic bomb. In many cases these weapons proved to be decisive. The best known examples are the role of radar in the battle of England, the surprise effect of Russian rockets at the counter-offensive at Stalingrad, the near disaster caused by the German V-2 bombs and the speedy termination of the war after the bombing of Hiroshima and Nagasaki. The corresponding scientific developments were encouraged by the military authorities and the results were utilized at the earliest possible opportunity.

New Weapons?

Interest in military applications of science has, if anything, increased since VJ-Day among politicians, the leaders of the armed forces and the general population. In the long run this sustained interest will result in this country and abroad in more powerful and probably quite unexpected types of weapons. There is no doubt that in any future war science will play a paramount role.

Application of science to problems of war has given rise to a trend which, to me, seems unmistakable. It is much easier to invent instruments of destruction than methods of defense. In no other case has this become more clear than in the field of atomic developments.

Defenses Absent

We have succeeded in constructing the most spectacular machine of destruction in human history. We have tried during years of uncertainty and desperate suspense to find ways of defending ourselves should our enemies develop atomic bombs before we can do so. We did not succeed. Atomic attack would have found our cities practically without defense.

There arises the possibility of a future war in which each combatant can wipe out his opponent; in which the cities, the industries and the population of a country may be wrecked and only its army will continue to function for a short time, a time long enough to do similar irreparable damage to the other party.

Atomic bombs are not the only danger; perhaps they are not even the greatest danger. But having thought more about atomic warfare than about other developments I shall attempt to give an estimate of the possibilities of attack and defense in this particular case.

What One Bomb Did

The fact that almost a hundred thousand men, women, and children were killed at Hiroshima gives a proper idea of the horrible power of atomic bombs that can be produced today. Of course the element of surprise and the lack of counter-measures contributed to this high figure of casualties. If one reads about the events following the bombing, one is struck by the picture of fires raging unopposed, wounds remaining unattended, sick men killing themselves with the exertions of helping their fellows. If Hiroshima had had more firebreaks, more fire-fighting equipment, more medical men, and supplies outside the city in sheltered places, the damage, the suffering and the toll in human lives would have been less.

This, in a way, may seem encouraging because we have at least some way in which to prepare for an atomic attack. But what little comfort this thought gives us will vanish if we remember that new kinds of bombs or other methods of destruction will come as no less a surprise than did the blinding flash over Hiroshima. We have, indeed, established a precedent justifying the use of untried methods of destruction without specific warning.

What Thousands Will Do

For the moment let us confine our attention to bombs of the present type. Let us assume that a large number, say a thousand or ten thousand, will be available. Let us also assume that some elementary countermeasures will have been carried out. Some of the population will be removed from the most congested areas. Essential industries will be dispersed. The vital organs of government, of rescue-work, of anti-aircraft or anti-rocket measures and the main forces of counter-attack will be placed in the sites which are best secured. In such an event our country could survive heavy atomic bombardment and win the war.

It is hardly possible to compare the effect of an atomic bomb with the effect of a certain tonnage of TNT. Both the old high explosives and atomic bombs cause damage by blast. But atomic bombs also destroy by flash burns and by causing radiation disease. As a very crude guess (and I think a moderate one) I shall set the damage of an atomic bomb equal to the effect of a thousand tons of TNT.

If this assumption is made, then the amount of high explosives dropped on Germany during the last war is equivalent to little more than a thousand atomic bombs. The bombardment left German cities in ruins but was not sufficient to win the war. We may make the optimistic assumption that our future anti-atom bomb devices will destroy ninety per cent of the bombs before they can do any damage. Then we may hope to escape defeat even if ten thousand bombs are launched against us. But even a victorious war of this kind will kill many millions of our citizens.

It would be a more complete defense to disperse our cities. With an enormous effort which would profoundly change our economic and social lives we could achieve this measure of safety. Then a few thousand Hiroshima bombs could kill only one per cent of our population.

Bigger Bombs

Actually it is quite unsound to limit our attention to atomic bombs of the present type. These bombs are the results of first attempts and they were developed under war-time pressure. The paramount consideration had to be: which of the devel-

peace. These vague proposals contemplated the retention by Japan of important conquered areas and were therefore not considered seriously. There was as yet no indication of any weakening in the Japanese determination to fight rather than accept unconditional surrender. If she should persist in her fight to the end, she had still a great military force.

In the middle of July 1945, the intelligence section of the War Department General Staff estimated Japanese military strength as follows: in the home islands, slightly under 2,000,000; in Korea, Manchuria, China proper, and Formosa, slightly over 2,000,000; in French Indo-China Thailand, and Burma, over 200,000; in the East Indies area, including the Philippines, over 500,000; in the by-passed Pacific islands, over 100,000. The total strength of the Japanese Army was estimated at about 5,000,000 men. These estimates later proved to be in very close agreement with official Japanese figures.

The Japanese Army was in much better condition than the Japanese Navy and Air Force. The Navy had practically ceased to exist except as a harrying force against an invasion fleet. The Air Force had been reduced mainly to reliance upon Kamikaze, or suicide, attacks. These latter, however, had already inflicted serious damage on our seagoing forces, and their possible effectiveness in a last ditch fight was a matter of real concern to our naval leaders.

As we understood it in July, there was a very strong possibility that the Japanese government might determine upon resistance to the end, in all the areas of the Far East under its control. In such an event the Allies would be faced with the enormous task of destroying an armed force of five million men and five thousand suicide aircraft, belonging to a race which had already amply demonstrated its ability to fight literally to the death.

The strategic plans of our armed forces for the defeat of Japan, as they stood in July, had been prepared without reliance upon the atomic bomb, which had not yet been tested in New Mexico. We were planning an intensified sea and air blockade, and greatly intensified strategic air bombing, through the summer and early fall, to be followed on November 1 by an invasion of the southern island of Kyushu. This would be followed in turn by an invasion of the main island of Honshu in the spring of 1946. The total U. S. military and naval force involved in this grand design was of the order of 5,000,000 men; if all those indirectly concerned are included, it was larger still.

We estimated that if we should be forced to carry this plan to its conclusion, the major fighting would not end until the latter part of 1946, at the earliest. I was informed that such operations might be expected to cost over a million casualties, to American forces alone. Additional large losses might be expected among our allies, and, of course, if our campaign were successful and if we could judge by previous experience, enemy casualties would be much larger than our own.

It was already clear in July that even before the invasion we should be able to inflict enormously severe damage on the Japanese homeland by the combined application of "conventional" sea and air power. The critical question was whether this kind of action would induce surrender. It therefore became necessary to consider very carefully the probable state of mind of the enemy, and to assess with accuracy the line of conduct which might end his will to resist.

With these considerations in mind, I wrote a memorandum for the President, on July 2, which I believe fairly represents the thinking of the American government as it finally took shape in action. This memorandum was prepared after discussion and general agreement with Joseph C. Grew, Acting Secretary of State, and Secretary of the Navy Forrestal, and when I discussed it with the President, he expressed his general approval.

July 2, 1945.

Memorandum for the President
Proposed Program for Japan

1. The plans of operation up to and including the first landing have been authorized and the preparations for the operation are now actually going on. This situation was accepted by all members of your conference on Monday, June 18.

2. There is reason to believe that the operation for the occupation of Japan following the landing may be a very long, costly, and arduous struggle on our part. The terrain, much of which I have visited several times, has left the impression on my memory of being one which would be susceptible to a last ditch defense such as has been made on Iwo Jima and Okinawa and which of course is very much larger than either of those two areas. According to my recollection it will be much more unfavorable with regard to tank maneuvering than either the Philippines or Germany.

3. If we once land on one of the main islands and begin a forceful occupation of Japan, we shall probably have cast the die of last ditch resistance. The Japanese are highly patriotic and certainly susceptible to calls for fanatical resistance to repel an invasion. Once started in actual invasion, we shall in my opinion have to go through with an even more bitter finish fight than in Germany. We shall incur the losses incident to such a war and we shall have to leave the Japanese islands even more thoroughly destroyed than was the case with Germany. This would be due both to the difference in the Japanese and German personal character and the differences in the size and character of the terrain through which the operations will take place.

Truman Accepts Responsibility for Bomb

THE FOLLOWING LETTER was written by President Truman on December 16, 1946 after reading an article by Prof. K. T. Compton, "If the Atomic Bomb Had Not Been Used" which has since appeared in the February issue of the *Atlantic Monthly*. Professor Compton's thesis was that the use of the bomb has been justified by its effect in shortening the war and avoiding larger casualties, both American and Japanese, which would have been caused by prolonged aerial bombardment and invasion of the Japanese homeland.

"Dear Dr. Compton:

Your statement in the *Atlantic Monthly* is a fair analysis of the situation except that the final decision had to be made by the President, and was made after a complete survey of the whole situation had been made. The conclusions reached were substantially those set out in your article.

The Japanese were given fair warning, and were offered the terms which they finally accepted, well in advance of the dropping of the bomb. I imagine the bomb caused them to accept the terms.

Sincerely yours, HARRY S. TRUMAN"

4. A question then comes: Is there any alternative to such a forceful occupation of Japan which will secure for us the equivalent of an unconditional surrender of her forces and a permanent destruction of her power again to strike an aggressive blow at the "peace of the Pacific"? I am inclined to think that there is enough such chance to make it well worthwhile our giving them a warning of what is to come and a definite opportunity to capitulate. As above suggested, it should be tried before the actual forceful occupation of the homeland islands is begun and furthermore the warning should be given in ample time to permit a national reaction to set in.

We have the following enormously favorable factors on our side—factors much weightier than those we had against Germany:

Japan has no allies.

Her navy is nearly destroyed and she is vulnerable to a surface and underwater blockade which can deprive her of sufficient food and supplies for her population.

She is terribly vulnerable to our concentrated air attack upon her crowded cities, industrial and food resources.

She has against her not only the Anglo-American forces but the rising forces of China and the ominous threat of Russia.

We have inexhaustible and untouched industrial resources to bring to bear against her diminishing potential.

We have great moral superiority through being the victim of her first sneak attack.

The problem is to translate these advantages into prompt and economical achievement of our objectives. I believe Japan is susceptible to reason in such a crisis to a much greater extent than is indicated by our current press and other current comment. Japan is not a nation composed wholly of mad fanatics of an entirely different mentality from ours. On the contrary, she has within the past century shown herself to possess extremely intelligent people, capable in an unprecedentedly short time of adopting not only the complicated technique of Occidental civilization but to a substantial extent their culture and their political and social ideas. Her advance in all these respects during the short period of sixty or seventy years has been one of the most astounding feats of national progress in history—a leap from the isolated feudalism of centuries into the position of one of the six or seven great powers of the world. She has not only built up powerful armies and navies. She has maintained an honest and effective national finance and respected position in many of the sciences in which we pride ourselves. Prior to the forcible seizure of power over her government by the fanatical military group in 1931, she had for ten years lived a reasonably responsible and respectable international life.

My own opinion is in her favor on the two points involved in this question:

a. I think the Japanese nation has the mental intelligence and versatile capacity in such a crisis to recognize the folly of a fight to the finish and to accept the proffer of what will amount to an unconditional surrender; and

b. I think she has within her population enough liberal leaders (although now submerged by the terrorists) to be depended upon for her reconstruction as a responsible member of the family of nations. I think she is better in this last respect than Germany was. Her liberals yielded only at the point of the pistol and, so far as I am aware, their liberal attitude has not been personally subverted in the way which was so general in Germany.

On the other hand, I think that the attempt to exterminate her armies and her population by gunfire or other means will tend to produce a fusion of race solidity and antipathy which has no analogy in the case of Germany. We have a national interest in creating, if possible, a condition wherein the Japanese nation may live as a peaceful and useful member of the future Pacific community.

5. It is therefore my conclusion that a carefully timed warning be given to Japan by the chief representatives of the United States, Great Britain, China, and, if then a belligerent, Russia by calling upon Japan to surrender and permit the occupation of her country in order to insure its complete demilitarization for the sake of the future peace.

This warning should contain the following elements:

The varied and overwhelming character of the force we are about to bring to bear on the islands.

The inevitability and completeness of the destruction which the full application of this force will entail.

The determination of the Allies to destroy permanently all authority and influence of those who have deceived and misled the country into embarking on world conquest.

The determination of the Allies to limit Japanese sovereignty to her main islands and to render them powerless to mount and support another war.

The disavowal of any attempt to extirpate the Japanese as a race or to destroy them as a nation.

A statement of our readiness, once her economy is purged of its militaristic influence, to permit the Japanese to maintain such industries, particularly of a light consumer character, as offer no threat of aggression against their neighbors, but which can produce a sustaining economy, and provide a reasonable standard of living. The statement should indicate our willingness, for this purpose, to give Japan trade access to external raw materials, but no longer any control over the sources of supply outside her main islands. It should also indicate our willingness, in accordance with our now established foreign trade policy, in due course to enter into mutually advantageous trade relations with her.

The withdrawal from their country as soon as the above objectives of the Allies are accomplished, and as soon as there has been established a peacefully inclined government, of a character representative of the masses of the Japanese people. I personally think that if in saying this we should add that we do not exclude a constitutional monarchy under her present dynasty, it would substantially add to the chances of acceptance.

6. Success of course will depend on the potency of the warning which we give her. She has an extremely sensitive national pride and, as we are now seeing every day, when actually locked with the enemy will fight to the very death. For that reason the warning must be tendered before the actual invasion has occurred and while the impending destruction, though clear beyond peradventure, has not yet reduced her to fanatical despair. If Russia is a part of the threat, the Russian attack, if actual, must not have progressed too far. Our own bombing should be confined to military objectives as far as possible.

It is important to emphasize the double character of the suggested warning. It was designed to promise destruction if Japan resisted, and hope, if she surrendered.

It will be noted that the atomic bomb is not mentioned in this memorandum. On grounds of secrecy the bomb was never

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British Atomic Scientists' Proposals for International Control of Atomic Energy

[The following statement was released to the press by the Council of the British Atomic Scientists' Association on January 20, 1947. It is reprinted here in its entirety.]

THE UNITED NATIONS Atomic Energy Commission has before it the two alternative proposals by the American delegate (Baruch plan) and by the Russian delegate (Gromyko plan). Mr. Philip Noel-Baker stated in the House of Commons on 2nd August that there is no fundamental clash of principle between these two plans and that they need to be fused; we share his belief that efforts must be continued to find a workable scheme acceptable to all countries.

A. Immediate Action

THE MOST important objection to the Baruch plan from the point of view of other nations is probably that it envisages in its first stages measures which may be construed as maintaining the dominance of the United States in the field of atomic energy, whereas the concessions which are to be made by that country appear mostly in the later stages. If these later stages are not to be ratified until the previous ones have been achieved, technically Congress could withhold ratification at any stage.

1 It appears to us essential that the Baruch proposals be amplified by making it clear that a definite succession of steps should be laid down from the outset and be accepted by each nation participating in the scheme. Each step is to come into effect upon a decision by the Atomic Energy Commission, or other agency of the United Nations, that the conditions laid down for the stage have been realized. In this respect, once the charter for the authority has been adopted, there should be no need for further ratification of each step by each country. The refusal by any member nation to implement these decisions would then be equivalent to a violation of the agreement setting up the Atomic Development Authority.

2 Notwithstanding the solemn undertaking already made by signatures to the United Nations Charter to refrain from all acts of aggression, it is not unreasonable to ask these nations in addition to reaffirm the undertaking with special reference to atomic weapons and all other weapons of mass destruction.

3 Another point of difference is that the Russian proposals require the destruction, within a limited period, of existing stocks of weapons, whereas the American proposals would postpone this stage until an effective system of safeguards has been established. On this question it is easy to understand the reasons for either point of view, but we think it would be reasonable to ask for a declaration by all countries of the amounts of fissionable materials in their possession and of the production rates in existing or projected plants. Such a declaration might materially contribute to a spirit of confidence, while not appreciably impairing the security of the United States. We hope, in particular, that it may be possible to make these valuable materials available for productive uses rather than to destroy them. It is unlikely in any event that nations would agree to the destruction of the precious fissile materials and without this the mere dismantling of existing bombs would be of no value, since the fabrication of bombs from the fissile materials is not likely to be the bottleneck in the production of weapons.

4 If it is decided that the first step should consist of a complete survey and control of raw materials, it should be understood that during this first phase all nations should still be free to proceed with the construction of plants and the use, in such plants, of the raw materials accessible to them. The aim would be to submit these plants and any materials produced by them to the control of the A.D.A., at the same time as such control takes effect for the plants and stocks now existing in the United States.

5 We believe that the chance of agreement and the rate of development of the beneficial uses would, in fact, be greatly improved if a generous view were taken of the definition of "basic scientific knowledge" which can immediately be exempted from secrecy rules. We also suggest that it would be a generous and helpful gesture if the nations now possessing the most advanced knowledge of atomic energy were to offer to other nations collaboration in setting up small atomic reactors, which are of little use for military purposes but are available for the purposes of scientific research and for the production of tracer elements for research in medicine and other fields. Collaboration in the construction of such small reactors should not only consist in a transmission of the necessary data but also in exchange of scientific and technical personnel and might involve the sale or loan of certain special materials of construction as far as the supply of such materials is available. This step, we believe, would offer immediate advantages to all the nations concerned which would far outweigh any contribution they make to the dissemination of technical experience of some value also for military applications.

B. Nature of Ultimate Control Scheme

6 Turning now from the immediate action to the features of the ultimate control scheme, the point that has given rise to most controversy is the question of the veto. We think it unfortunate that this point should have reached such prominence in the early phase of discussion, before other features of the plans had been adequately considered. We believe that the relations of the A.D.A. to the rest of U.N., and in particular to the Security Council, have to be specified more clearly than was done in the Baruch proposals. It is clear that there cannot be two independent bodies responsible for the enforcement of international agreements and that since the A.D.A. cannot supersede the Security Council, the A.D.A. has to be subject to the direction of the Security Council in matters of policy and that A.D.A. cannot take upon itself the function of defining and punishing a violation of the agreement. As long as the U. N. charter provides for the right of veto in certain decisions of the Security Council, we do not see how application of sanctions in matters which concern the A.D.A. can be made independent of this right. While definite provision for the veto exists and is likely to remain an essential part of the charter, it is, of course, essential that procedure be developed which limits the use of the veto to matters of fundamental importance without unduly hampering progress in the work of the Security Council. This point, whose relevance is by no means limited to problems connected with atomic energy, is now being discussed by the permanent members of the Security Council.

7 On the other hand, if A.D.A. is to carry out effectively the control of raw materials and is to own facilities for development and production, it will have problems of day-to-day management in which progress is impossible unless A.D.A. possesses a certain degree of autonomy over such matters, which leaves it free to take decisions without referring each question back to the Security Council and without the possibility of being blocked by a veto over technical matters. The line between administrative problems which are the province of the A.D.A. and policy problems to be settled by the Security Council is, of course, difficult to draw and, while rules can be framed after careful study of the situations likely to arise, there remain borderline cases in which the question of procedure will have to be settled by the Security Council, or possibly by the General Assembly of U.N.

8 It is an important feature of the Baruch plan that all "dangerous" production facilities, i.e., all those that are easily adapted to the production of military weapons, should be owned by A.D.A. On this point the Gromyko plan makes no specific proposals, although points (2) and (3) of the terms of reference of the second committee proposed in that plan provide for discussions which might possibly lead to a scheme of the same general type.

What precisely is meant by "ownership" is not very clearly specified, either in the Baruch plan or in the Lilienthal Report. Full ownership, in the usual sense of the word, would meet with difficulty, since it would give A.D.A. the right to decide whether power plants could be built in any country and the right to withhold the use of the power produced in such a plant or to place conditions on the supply of such power. Such restrictions would give the possibility of interference in the economic life of each country to a degree not essential to the purpose of preventing the abuse of atomic energy for destructive purposes. On the other hand, it would appear essential, in order to conform with the spirit of the Lilienthal proposals, that A.D.A. should take over the operation of such plants with the right of ensuring that any dangerous products were consumed in power plants and that no excessive stockpile be produced. We have no perfect solution to offer to this problem, but we feel that a careful study of the precise meaning of A.D.A. ownership should lead to a scheme that would be free from objections and that would provide both a safeguard against the accumulation of dangerous materials without the approval of A.D.A. and the opportunity for nations to take the initiative in building up within their territory efficient atomic power plants to supplement their other resources of power.

A scheme which, in this way, would circumscribe the powers of A.D.A. over national plants could minimize the difficulties arising from suspicion of interference with the economic structure of the country.

An alternative and less ambitious suggestion is to limit the function of A.D.A. to the inspection of plants and control over the distribution of products. In this connection, however, we are impressed with the strength of the case made in the Lilienthal Report for giving to A.D.A. positive responsibility for production and ownership and with the difficulties outlined there of maintaining an effective inspection under any conditions. There is considerable doubt as to whether a control scheme not containing this feature would offer sufficient security.

9 The positive functions of A.D.A. will be further strengthened if it is accepted that A.D.A. should itself undertake research on all problems of atomic energy. Its research organizations should be strong enough to ensure for A.D.A. a lead in knowledge of all scientific and engineering aspects of the problem and to make it desirable for most countries to call in the help of A.D.A. in setting up and designing new plants. The existence of A.D.A. research organizations need not exclude national research, provided the latter is carried out openly and its results made available to A.D.A. In fact, the closest co-operation could be expected between A.D.A. and national research. At the very least, an A.D.A. research organization should carry out the function of an essential clearing house of all information on the technical problems and should help to disseminate and coordinate the results of national research institutions.

10 One of the key factors of control is that of raw materials and here it is not sufficient to leave national initiative unimpaired, since in the absence of a free market the access to raw materials must be covered by international agreement. This problem is related to the general problems of access to raw materials other than atomic fuels but it is outstanding amongst them because of the supreme military and future economic importance of atomic fuels. A solution to this problem should be sought in relation to the more general problem as well as in relation to the general agreement for the control of atomic energy.

11 We do not believe that it is necessary to class research on atomic explosives as a dangerous activity; the danger does not come from research as such, but from the application of the results. The object of a control scheme is to ensure that the results of such research would never be used for destructive purposes; but, in addition to any engineering uses of atomic explosives, the knowledge of the possibilities of atomic weapons is essential to make effective plans for preventing their illicit manufacture or use. We believe that it would be a sufficient safeguard to ensure that research agencies not directly owned by U.N. should have no access to dangerous amounts of material, except under the supervision of A.D.A., and to require that all such research be carried out openly and that any relevant results be immediately reported to the A.D.A.

12 A further important question is that of inspection. We have stated previously that the problem would be made easier if all dangerous plants were owned by A.D.A., but there remains the problem of ensuring that they are indeed the only existing dangerous installations. If nations were prepared to rely on each other's good faith the whole problem of control of atomic energy would not arise. As things are they can feel secure only if there exists some form of inspection. It is desirable that the right of inspection should be circumscribed as far as possible and should not be a means of excessive prying into legitimate industrial or other activities. This is a question which can only be settled by extensive discussion. One might contemplate a procedure similar to a search warrant which would give the right of entry upon certification by A.D.A. that there exist reasonable grounds for suspicion. But one has to bear in mind that the discussion of the question whether in any given case there are reasonable grounds for suspicion may well lead to so much friction as to hamper seriously the work of A.D.A. We feel that the difference between the kind of inspection that merely aims at satisfying itself that any given mine or chemical plant is not handling large quantities of uranium or thorium ore or that any given

(Continued on Page 49)

Senate Committee on Atomic Energy . . .

THE SENATE half of the Joint Senate-House Committee on Atomic Energy, established under the McMahon Bill, opened, on January 27, hearings in connection with the confirmation of the President's appointees to the national Atomic Energy Commission. This Senate group is the successor of the McMahon Committee and contains most of the members of the latter. The chairmanship has passed to Senator Hickenlooper (R., Iowa). Other members are the Republicans Vandenberg (Mich.), Millikin (Colo.), Knowland (Cal.), Bricker (Ohio), and the Democrats McMahon (Conn.), Russell (Ga.), E. Johnson (Colo.), and Connolly (Tex.).

The hearings revealed that the main interest of the Senate Committee was to find out whether the commissioners can be trusted to maintain strict security, and to allow the military liaison committee full participation in their work. These two questions appeared to be paramount in the minds of Senators Hickenlooper and Vandenberg, while Senators Millikin and Bricker were also interested in finding out whether the commissioners will consider the government monopoly of atomic energy a temporary measure, looking towards eventual release of the field to private enterprise.

We give in the following some questions and answers from the first two days hearings:

January 27. The Chairman of the Atomic Energy Commission, *Mr. David Lilienthal,* was the first to be interrogated. After the recital of his past activities, the Chairman of the Committee asked whether he had technical or scientific experience.

Mr. Lilienthal: I am a lawyer by profession and training. I am not an engineer, nor do I have any technical or scientific background worth mentioning. However, the TVA itself is a technical enterprise and encompasses in its staff technicians and scientists of many different kinds. So the problem of harmonizing and getting things accomplished through technicians was an important part of that job.

The Chairman: I would like very much to have you give us some of your general ideas as to what atomic energy may mean to this country.

Mr. Lilienthal: I think it ought to be recognized at the outset, without any attempt to pull punches, that atomic energy at the present time is essentially a weapon of war; that it is the greatest weapon that has ever been devised and the most potent.

In the present state of international affairs, to in any way disregard that common defense and security should be paramount, would be foolhardy, And there has been no such tendency in the deliberations of the Commission; quite the contrary.

However, the statute also has as its objective the development of the peaceful opportunities that are available in respect to this magnificent discovery. After all, energy, energy other than human energy, is what makes civilization. Here is the discovery of a great new source of energy under control, a fantastically great source. And that it might be used for human welfare, it seems to me, is just as clear as that it may be used for destruction. This requires a great research program, and it is that to which we have directed a great deal of our attention.

The Chairman: I am quite sure, Mr. Lilienthal, that you fully appreciate the tremendous and the unusual extent of the powers that the law has placed upon the Commission, and the corresponding magnitude of the responsibility that goes with it.

Mr. Lilienthal: I think there is this fortunate circumstance that in a number of ways the Congress already has explored how this physical invention can be followed by a political invention, which can permit of its development without unlimited and unaccountable exercise of power by the agents of the Congress.

Furthermore, the establishment of the joint committee, a continuing joint committee, is in itself a great reassurance to the Commission, and I think a security against the exercise of arbitrary power.

It is a handicap to an administrator who tries to be conscientious that his opportunities to discuss matters with the Congress are usually limited either to some kind of crisis or to the annual appropriation discussions. Now, the conception here is of a continuing relation with a Congressional group, in which one can get the benefit of the judgment of legislators, discuss problems not when they become crises but in the process of their development, and anticipate the needs for legislation.

One of the things that we have been thinking of is the use of either advisory committees, or of laymen, or scientists, from the outside, people who are not in the Government; and consultation particularly with industry, or with men prominent in the fields encompassed in this law. For example, in respect to the patent problem, it is important that the Patent Bar be consulted. We have asked the Commissioner of Patents and some patent lawyers, especially those who may be critical of the provisions of the law, to give us the benefit of their judgment. We have the same plans in respect to the development of a pile for the production of power: of having men from the utility industry actually participating in the development of these power producing piles.

Senator Knowland: Has there been any relaxation of security in the Manhattan Project since October?

Mr. Lilienthal: No, Senator Knowland. The facts are these: On the date of our first meeting of the Commission at Oak Ridge on November 13, the Commission adopted the security regulations that were then in force, those of the Manhattan District. And an effort is under way to strengthen and improve those. By way of getting special consulting help, we, for example, the other day secured the services as consultant of the former Chief of the United States Secret Service, Mr. Frank J. Wilson. We called back former Manhattan District security officers who have left the service since the war, and we are now in process of seeking to make those existing security regulations, which were taken over and adopted, more effective. During the war, the necessity for the security of information was pretty clear, and a great measure of cooperation was possible and was secured. Now that we are in what is sometimes referred to as peacetime, there is great danger that a general relaxation will take place which will make the maintenance of security a very difficult thing. And yet it is at least

as important now as it was during the war. The habits of the American people are not inclined toward secrecy in peacetime. So there will have to be great ingenuity exercised, and great restraint and cooperation, as well as enforcement, to maintain essential security of information and data comparable to and if possible even better than during wartime.

The Chairman: May I ask you whether or not up to this time pressure has been exerted to any great extent on you or the Commission by any groups for the letting down of the bars for almost unlimited publicity or information?

Mr. Lilienthal: There is, of course, as you know, a feeling among many people with respect to those documents and papers already declassified, which have been held from publication by just the slowness of printing, and so forth. Both industry and science feel that that has been unfortunate. But that has already been de-classified prior to our taking over.

The Chairman: Do you think that it might be advisable at this time to have at least a review of de-classified information, to see whether in the light of subsequent developments some reconsideration might be given to certain information?

Mr. Lilienthal: I believe not; because the de-classification that has been carried on has been approved by the Manhattan District, and it was in an area where I think there is no question at all. Now there are other categories where there are questions, but those have been reserved, and those must be re-examined. And that review will be made before there are any further steps taken. It will also be reviewed with the Joint Committee.

Senator Vandenberg: Has your Commission ever consulted with General Groves since the Commission was organized?

Mr. Lilienthal: Yes, that was one of the very first things we did, and all during this period we have had the benefit of a good many consultations with General Groves and some of his associates on a great variety of matters. And Colonel Nichols, his deputy, has been of invaluable service to the Commission as well.

Senator Vandenberg: Is there any disposition on the part of the Commission to be prejudiced against military advisers?

Mr. Lilienthal: No. We have had sessions with the military liaison committee. We have discussed this matter with the Secretary of War and the Secretary of the Navy, the Chief of Naval Operations, the Deputy Chief of Staff. As to the operating personnel, we do conceive that except for the Division of Military Application, this should be essentially a civilian enterprise.

Senator Vandenberg: Do you mean by your answers that men of military background or military experience are not eligible, because of their background, to take part in the civilian operation?

Mr. Lilienthal: I meant that men in the active service presumably would not be. I don't know whether "eligible" is the word—would not be suitable. The Director of Production who has just been appointed, was a colonel during the war. His name is W. J. Williams. He had a comparable position in the Manhattan District. The fact that he had had military experience might be an advantage. But he is at the moment a civilian.

Senator Millikin: Is there any restriction whatever on the military liaison so far as its ability to acquaint itself fully with everything that is going on in the Commission is concerned?

Mr. Lilienthal: You cannot say at any point up to the weapon that anything is "necessarily civilian" or "necessarily military." They are interchangeable. Therefore, the military liaison committee should be informed with respect to the entire operation from mine to active material.

Senator Millikin: No one will substitute his judgment for that of the military liaison committee as to the field in which it is interested?

Mr. Lilienthal: The answer to that is definitely that it is up to the military liaison committee to decide what it regards as an appropriate military field.

Senator Millikin: Are they in attendance at all sessions of the Commission?

Mr. Lilienthal: No, and we do not contemplate that. I think there is a distinction between the responsibility which the Commissioners have, and the responsibility of liaison with the military liaison committee. There will be many joint sessions, and there will be a great deal of interchange of information. But it would be very difficult for the Commission to feel free to discuss matters except within a Commission meeting.

Senator Millikin: I suggest to you, Mr. Lilienthal, that you have not met the intent of Congress that the military liaison should be advised of everything that is going on in the Commission. It is the intent of Congress, I suggest, that they should have the right to know everything that is going on in the Commission. And they can't do that unless they are present

Senator Knowland: And I also suggest, along the same line, that if the joint committee is to fulfill its responsibility there should be no question of doubt but that they would have the same opportunity.

Senator Millikin: You have spent a great part of your life, Mr. Lilienthal, either directing monopolistic enterprises or supervising monopolistic or quasi-monopolistic enterprises. It was the intention of Congress that these extraordinary grants of power that we have given to the Government, both on the operating side and on the patent side, would be restored to private enterprise at the very first time that it can be done, consistent with safety and the national welfare. Are you temperamentally fitted to make that sort of transition?

Mr. Lilienthal: It seems to me that in terms of the national defense our differential in respect to other nations consists very largely in the kind of industrial system we have developed; which is unique and far ahead of anything else in the world. Somehow we must see to it, in respect to atomic energy, that, to use a colloquialism, "There will be something in it for industry." We must see to it that there will be the kind of incentive-to-development that has developed the automobile and many other things. At the moment, nobody is quite wise enough, as far as I can see, to figure out just how that will happen.

Senator Millikin: Are you temperamentally suited to the release of the whole subject to private enterprise?

Mr. Lilienthal: Yes. In the course of the development of the report on international control of atomic energy by the State Department board of consultants, this problem arose: It seemed to us clear —and there were two industrialists on this board—that somehow there must be an international monopoly of the dangerous aspects. It was in part due to my concern about the enormous centralization that that would involve, that avenues were explored to find some way whereby you can have your monopoly over dangerous activities, as well as your fluid enterprise, both as to research and development, in connection with the non-dangerous aspects.

Senator Johnson: I wanted o ask you, Mr. Lilienthal, if you are in full, complete, and 100 per cent agreement with the Baruch-Austin policy on the handling of atomic energy internationally.

Mr. Lilienthal: I am in full, complete, and 100 per cent agreement with the

American proposal now known as the Baruch-Austin proposal.

Senator McKellar: Did it not seem to you to be remarkable that in connection with experiments that have been carried on since the days of Alexander the Great, when he had his Macedonian scientists trying to split the atom, the President of the United States would discharge General Groves, the discoverer of the greatest secret that the world has ever known, the greatest discovery, scientific discovery, that has ever been made, to turn the whole matter over to you; who never really knew, except from what you saw in the newspapers, that the Government was even thinking about atomic energy?

The Chairman: Let us have it quiet, please.

Senator McKellar: You are willing to admit, are you, that this secret or the first history of it, dated from the time when Alexander the Great had his Macedonian scientists trying to make this discovery, and then Lucretius wrote a poem about it, about two thousand years ago? And everybody has been trying to discover it, or most scientists have been trying to discuss it, ever since. And do you not really think that General Groves, for having discovered it, is entitled to some little credit for it?

Mr. Lilienthal: I have stated in writing and elsewhere what I think about how much credit General Groves should receive. And it is very great indeed.

January 28. The testimony of Mr. Lilienthal was resumed.

Senator Vandenberg: I would like to see if Mr. Lilienthal and I are in any disagreement on the point we discussed yesterday regarding freedom of access of the members of the military liaison committee and the Congressional Liaison Committee to the Atomic Energy Commission.

I am not talking about an arrangement which requires the constant attendance of observers from the military liaison committee or the Congressional Committee. I am simply inquiring whether or not it would be your understanding that these observers can attend at any time, whenever they think they need to attend.

Mr. Lilienthal: My concern relates not to access to information, nor to liaison in any of its forms, but to the administrative possibilities of this setup.

The Chairman: In case of a conflict between your judgment as a Commission member and that of the military liaison committee on matters that they believe to be important to the military security of this country, whose judgment will control, in your opinion?

Mr. Lilienthal: There would be no conflict, Senator. Because this is what I intended to say and what I would like to make very clear: it is the judgment of the military liaison committee which controls. I merely said our own opinion would be that things shoiuld be called to their attention which they perhaps on their own initiative had not regarded as having military significance.

But I hope that is perfectly clear: We are not putting ourselves in the position of saying "This is not military; therefore, it is none of your business." It is to be their judgment which is final. But it will be our policy—and that is fixed—to regard virtually everything as having some consequence in military terms.

Now, the question of how to maintain liaison and still operate this enterprise is an administrative question. And we should be careful not to weight down what is admittedly a difficult managerial setup with any paraphernalia that can be avoided and still achieve the result.

As to closed doors and closed files and non-access, there are security problems in that connection which we ought to discuss in executive session. Everyone knows that security is not simply a matter of the good faith or trustworthiness of people; the more people who have certain information, the less secure, generally speaking, is the security system.

We have the responsibility if there is a leak. Therefore we would be derelict in our duty if we did not warn the committee that there is a problem there, and the liaison should be carried on with both bodies in a way to minimize that.

Senator Vandenberg: In the security field, I certainly would hope that the members of the Congressional Liaison Committee would never know any of the atomic secrets.

Mr. Lilienthal: It is too late for that.

Senator McMahon: As a Senator of the United States, and as a member of this committee, I deny the right of this executive commission to keep secret anything from me that I may need to know to discharge my responsibility. And that might mean some very secret information.

Senator Vandenberg: You mean if you decided you wanted to know how to make a bomb, you ought to be told?

Senator McMahon: If I want to know how many bombs there are, I want to be told.

Senator Vandenberg: I am not clear that I want you to be told.

Senator McMahon: I am just as clear on my right to know.

Senator Millikin: I wanted to suggest that the question of how much information a committee member should have should be within the power of the committee itself.

In other words, if someone wanted to know how many bombs we had, or exactly how to make a bomb, the committee itself could decide whether or not such information should come to the committee.

The Chairman: Mr. Lilienthal, I would like to ask you about the general overall method by which you as a member of the Commission expect to arrange the general business of the Commission.

Do you expect to take over the office management, and have somebody take over this department, and somebody take over that department; or how do you expect to handle it?

Mr. Lilienthal: The Commission has adopted as a fixed policy what I think is the only possible workable policy, and that is that the work will not be divided as to administration between members of the Commission and its chairman.

We will act as a body to plan and evaluate programs, to determine upon policies, and to provide a means of their execution through a general manager.

Without that, and without the agreement that all execution, without exception, shall be carried on through a general manager—well, I confess I do not see how this vast business undertaking can be carried out.

Now, the general manager is, by what seems to me an extraordinarily wise and I believe a unique provision of federal law, a Presidential appointee. He, like ourselves, is serving a recess appointment and is subject to confirmation of the Senate. He therefore has a dignity and a prestige equal to the members of the Commission and its chairman.

We have delegated to him virtually all of the execution of the functions of the Commission. He, in turn, will have a relatively small staff. The statute provides for a Division of Research, a Division of Engineering, a Division of Production, a Division of Military Application; and, of course, permits of other divisions, but at least names those. And instead of having those division lines running clear through the organization, it is the Commission's policy, reached after considerable deliberation, that those divisions should be in effect staff divisions to the general

manager.

We want to avoid a large Washington force. We hope to keep that really quite small, and keep the organization around the general manager small.

The Chairman: Who is directing your personnel employment?

Mr. Lilienthal: Mr. G. Lyle Belsley.

The Chairman: In the Division of Military Application, have you selected the director of that division yet?

Mr. Lilienthal: No, we have not reached a conclusion.

Because as we conceive of the Director of Military Application, he is not simply the supervisor of weaponeering, but is the man in the team around the general manager who will see to it that military considerations of war planning impenetrate the whole activity.

So this calls for a very high order of military man.

The Director of Military Application should bring into the councils of the Commission an understanding of military plans and strategic concepts currently being prepared and developed by the Army, Navy, and Air Force, and should interpret them to the staff of the Commission and to the Commission itself.

His recommendations will be made to the general manager and be available to the Commission, and he will also have a very large function of liaison with the military; not only the military liaison committee, but the whole military establishment.

The Chairman: Are there any other questions by the members of the committee?

Mr. Lilienthal: Mr. Chairman, I just had one additional comment about security.

This matter of maintaining inviolate the security of information, is a responsibility which has been put upon the Commission, and it is going to be almost impossible to do an effective job in that respect—and it is a very vital matter—unless there is a great deal more than just a police force or security force on the Commission, and threats of prosecution.

This matter of security is going to take an awareness on the part of the American public, and a great many responsible people are going to have to assist in developing a frame of mind to make this possible.

I do not mean that there is anyone who feels that security is unimportant, but there has been a relaxation, which is inevitable in peacetime perhaps, and there have been some serious—either breaches of security, or the authorized publication of information which raises the question in many peoples' minds: if that may be spoken about, why may I not discuss such a subject?

Senator McMahon: Mr. Lilienthal, I suppose the Smyth report is the biggest giving-out of information that we have had in the whole history of the project, is it not?

Mr. Lilienthal: Yes, the Smyth report is the principal breach of security since the beginning of the atomic energy project, and it may well have been necessary, although many parts of it seemed to me very questionable indeed. But in any case, that has made our present chore a very, very difficult one. I call your attention, for example, to the fact that in that report four different ways of separating U-235 were generally described, and then the statement was made that all of them had succeeded.

Now, things like that just make our chore a really heartrending one.

Senator McMahon: It has been estimated that that has brought other countries from one and a half to two years closer to the achievement of our own knowledge of atomic secrets. Have you any estimate of that?

Mr. Lilienthal: No, I have not, Senator. It is hard for me to be temperate in my feeling as to how difficult some of those things have made the present situation.

Senator McMahon: Who authorized the release of the Smyth report?

Mr. Lilienthal: I know it was recommended for release by a committee of some sort; and authorized by General Groves; and authorized by the President, I have no doubt. I still say that it in some respects has made our chore of shaping this security system a really terribly hard one.

It makes it very difficult, in dealing with people who have done a piece of scientific work, or who want to discuss what their institutions have done in respect to this project, of which they are very proud, to say "No, you can't" and then have them turn to these technological and know-how statements that obviously, in the hands of smart scientists abroad, have simplified a great deal of their problem.

Now, that is tough. I am sorry to be so candid about it, but this thing has been seeping in me for quite a while.

This is not an easy job, and we will need a good deal of time with the committee. For example, we now have, as everyone knows, combined joint chiefs of staff with England and Canada; and yet we are forced to take positions in respect to security that, in the light of the area of interchange of information that goes on in that military sense, makes our position ludicrous.

Now, you cannot maintain security if you are making yourself a laughing stock.

The Chairman: I remember very well that last year the Senate Special Committee was subjected to criticism that was most caustic indeed, from various scientific groups and others in this country, because, first, we were trying to preserve some secrecy, and secondly, Senator Vandenberg developed horns longer than a Texas steer in the minds of certain groups when he proposed the military liaison committee.

The Manhattan District was criticized, by certain groups, because there was not a great deal more information and publicity given on detail and scientific development than was given in the Smyth report.

And we were told by many scientists at that time that the Smyth report was merely a rudimentary report containing only generalities that every top-flight scientist had really known for a long time.

And we were assured by many outstanding scientists that the Smyth report did not give too much aid and comfort to anyone seeking this information, if he were a really top-flight physicist in other parts of the world.

Senator Vandenberg: You talk a little longer about this thing, and I will quit worrying about you and security.

Mr. Lilienthal: What I think we have got to do is to organize a group of from three to five men of great wisdom and understanding and set them to work for the committee and for the Commission studying this problem in the light of American customs and ways—we cannot attempt something that people will not stand for; I mean just ordinary folk—and find an answer that will be more effective than what we have now.

Now, what we have now is a continuation of the Manhattan District security measures, with a very good group of men, and an able group of men. We have called one or two of them back who had left. But that is not going to be good enough for the years that we have ahead of us, I am afraid, and this is something that I think ought to be discussed informally at some length.

McMahon Suggests Solution of Veto Controversy Through World Court . . .

[Upon his return from Europe, Senator McMahon (D., Conn.) delivered on January 27 a speech before the U. S. Senate, devoted to the present situation in the field of atomic energy. Following are some excerpts from this speech.]

OUR efforts to secure agreement with the nations of the earth for the international control of atomic energy constitute the most important issue facing this country and the world today.

I have said before and I say again that unless and until international control of atomic energy is an existing fact, there can be no stability in the years ahead, no security against sudden and complete destruction, and no guarantee, therefore, of the continuation of this republic.

* * *

We have indeed attained a decided measure of progress in our thinking on this question since August 6, 1945. We all recollect that the first reaction to Hiroshima of, I believe, a majority of our people—and yes, a majority of the members of Congress—was that at all costs we must, as the phrase has it, "keep the secret." I suppose that we would, as a nation, still be of the same mind if it were possible that we could do so. But I think there is no question among informed people today as it was recognized by some of us immediately after the event that such a policy is illusory and fleeting in its security. This is so because in all-too-short a space of time, the so-called secret will become known to other nations and when that happens, any security based upon our sole possession of this force will come to an end. There is nothing we can do to prevent others from learning how to make atomic bombs because the book of nature is open to all. There is not a single scientist of note in the whole country who does not acknowledge this as an accepted fact. We could hide our so-called "secrets" in the deepest vault at Fort Knox and shoot all our scientists, and other nations will still learn how to make atomic bombs.

* * *

The clock ticks on and with every tick we are losing a part of our capital of monopoly. When many nations have atomic bombs, peace will be precarious indeed, and the opportunity of achieving agreement for international control may become well-nigh impossible.

The situation in the international negotiations which exists today is briefly this: In the Security Council the United States has up to now maintained that the question of atomic energy control must be dealt with before general disarmament. Russia, on the other hand, insists that the General Assembly's disarmament resolution, including control of atomic weapons, be treated together and as a whole.

To permit atomic energy control, which a UN sub-committee has already found to be technically feasible, to become submerged in the discussions on general disarmament is to leave the world without control over atomic weapons for the duration of those discussions and until a disarmament treaty has been ratified by each of the contracting parties. And how long might that take? The Soviet delegate has asked for a three month limit on the drafting of a disarmament plan. Even if such a Plan were forthcoming in that space of time, it might still take years to conclude discussions on it in the Security Council and the General Assembly and to get it approved by all the nations.

* * *

Following the last war, disarmament discussions and conferences — together with preliminary and succeeding meetings —continued from 1919 to 1936—a period of 17 years!

It has been asked, just what American interest is served by insisting upon atomic disarmament before there is any other kind of disarmament? If atomic weapons are decisive, it is asked, why are we insisting that we give up our own decisive weapon first? The answer is that our own defense demands it.

* * *

It is in the interest of our own security, Mr. President, to get inspectors behind the high walls *now* so that we may know what is going on *now*, before it becomes possible for us to be shocked into awareness by the sudden explosion of an atomic bomb in our midst. Today we have no way of knowing what other countries are doing about atomic weapons or how far they have advanced. But this much we do know. Other nations are working night and day on the problem. So long as we do not have exact knowledge we become prey to fear and suspicion. For example, a news report out of the Soviet Union not long ago stated that their chief nuclear scientist, Peter Kapitza, had been sent to Siberia as punishment for some crime. It seems obvious to me that a more likely explanation is that Kapitza is now busily at work behind the Urals constructing an atomic fission plant. However, I cannot prove it. I do not know and none of us know and there is no way of knowing.

Because peace on earth is so vital to our well-being, we cannot, we dare not, permit anything to stand in the way of an international agreement which will put into operation an effective and enforceable system of atomic energy controls. What is today holding up progress on such an agreement?

The Soviet delegates to the United Nations have remained adamant against one point of the American plan. They will never, they say, agree to the elimination of the right of veto on punishment because, they maintain, this would weaken the Security Council and the Charter of the United Nations. On this issue, it could be possible to filibuster the negotiations for months, or even years, if we permit it to be done.

Since the Russians say they will not relinquish the right of veto and since we can never permit any violator of an atomic control agreement to find protection from punishment under the veto, it is obvious that a way out must be found at once to avoid stalemate and inaction.

On October 29 of last year in speeches before the American Bar Association and the New York Herald Tribune Forum on current problems, I offered a way out of the dilemma by proposing that questions of violation and punishment be taken out of the Security Council where debate could be filibustered and punishment dangerously delayed.

* * *

Let a treaty for the control of atomic energy be drawn up which will specify violations requiring punishment. Let the treaty spell out the type of punishment to be meted out for each type of violation. Let it be written into the treaty

that questions of violation are questions of fact for determination by the International Court of Justice. Let the treaty make it mandatory on the Court to hear the evidence immediately and return a finding of fact within a limited and specified space of time. The treaty should state that the judgment of the court would be final and that upon a finding of violation by the court, it would be mandatory on the Security Council to implement the Court's decision in the manner specified within the treaty.

Under such a treaty, swift and certain punishment would await such violations as (1) illegal possession or use of an atomic bomb; (2) illegal possession, or separation, of atomic material suitable for use in an atomic bomb; (3) seizure of any plant or other property belonging to or licensed by the Authority; (4) wilful interference with the activities of the Authority; (5) creation or operation of dangerous projects in a manner contrary to, or in the absence of, a license granted by the international control body.

In view of the technical nature of many possible violations it would be well to write into the treaty that the Court is to give great weight to the finding of facts as to violation made by the Atomic Development Authority.

Mr. President, article 36 of the Statute of the International Court of Justice, which is an integral part of the Charter of the United Nations, makes it clear that among the cases within the jurisdiction of the Court are legal disputes concerning the existence of any fact which, if established, would constitute a breach of an international obligation.

In other words, Mr. President, we would simply be using a tribunal already established within the framework of the United Nations for a purpose already specified as within its jurisdiction. We would simply be using the machinery of the Court to notify the Security Council when the deputy marshals in the form of the international police power, would be needed to enforce the agreement which the high contracting parties had entered into.

Mr. President, it seems to me that this plan meets the American objective at the same time that it eliminates the stated Russian objections, while, simultaneously, it strengthens the United Nations and implements its principle of collective action. If the Russians are sincere in their desire to do away with atomic and other weapons of mass destruction, and I sincerely hope they are, then I can see no reason this proposal for peace, and go forward to the establishment of the Atomic Development Authority and the era of world-wide peace and prosperity which must follow. If they are not sincere, we will soon know it and we will then know what we must do to survive in a world of a potential aggressor.

British Atomic Scientists' Statement on Control

(Continued from Page 43)

factory is not a separation plant or pile is so different in type and order of magnitude from the kind of inspection that would disclose manufacturing secrets that it ought to be possible to work out a scheme which allows the one and prevents the other.

One key feature in preventing illicit production plants is the control of all natural uranium and thorium and it seems to us essential that A.D.A. should have access to and control of all such material at the source. One cannot, however, rely on this measure exclusively on account of the possibility of some future discovery, such as an economic method of extracting uranium from low grade ores, since in this way it might become possible to produce uranium as a by-product of other mining operations.

* * *

Conclusion

IT MUST be admitted that an effective system of control acceptable to all concerned is a very doubtful proposition in the present state of distrust between nations, since it must contain, at least in embryonic form, a measure of world government. It is felt by some of our members that we can scarcely expect any effective agreement on the control of atomic energy at the present time. The above suggestions have been put forward in the hope that they will clear ideas with regard to a plan which we can only hope will be a feasible proposition before long. Some of the suggestions might, however, be put into effect immediately, mainly some of those we have listed under "A. Immediate Action." These might help in creating a favorable atmosphere for a workable system of control.

ATOMIC HEARINGS

[An Editorial from **The Washington Post**, January 29, 1947.]

The old issue of civilian versus military control of atomic energy, threshed out and seemingly settled in the long debate last summer over establishment of the Atomic Energy Commission, has been raised again in Senate hearings on the confirmation of David E. Lilienthal. It is an issue which ought never to have arisen in a free society. The very consideration of it suggests a condition of panic. For the subordination of the military to civil authority is a cornerstone of the concept of government by consent. It is astonishing to find this principle called into question by men of Senator Vandenberg's or Senator Millikin's caliber.

Senator Millikin asked Mr. Lilienthal on Monday: "Why shouldn't the military liaison board sit in on all Atomic Energy Commission meetings? What would be the difficulty?" It is testimonial, we think, to Mr. Lilienthal's self-control and tact that he was able to treat this query as a rational one. The answer, of course, is that this would put the Army precisely in the position from which the Senate with so much difficulty ousted it last summer—on the commission itself. The long contention between the House and Senate, between the May-Johnson bill and the McMahon bill, was whether the military as such should have commission membership. Senator Vandenberg, out of a regard, we suppose, for the principle of civilian supremacy, was one of the sponsors of a settlement which denied membership to the military while providing for a due recognition of their interest and importance through a military liaison board. It is indeed paradoxical to find him now "underscoring" a proposal that would put the Army back in the saddle.

Still more strange is the fantasy entertained by Senator Knowland that all meetings of the Atomic Energy Commission should be attended by members of the Joint Congressional Committee on Atomic Energy. This would amount, patently, to a direct violation of the separation of powers enjoined by the Constitution. It is not the business of the legislature in our political system to engage in the day-to-day details of administration. Senator Knowland's proposal, also "underscored" by Senator Vandenberg, would leave the development of atomic energy to a committee of Congress instead of to the Atomic Energy Commission created by Congress for this express purpose. Nothing like such an invasion of the executive domain has been suggested since Civil War days when Ben Wade and some of his congressional colleagues sought to take over from President Lincoln and his Cabinet the management of the war effort. And in their behalf it could at least be said that they were trying to prevent, not to promote, military domination.

In the present position of international relations, it cannot be doubted that the military aspects of atomic energy are of prime importance. David Lilienthal understands this as well as any Senator. He can be counted upon to be as zealous as any general for the maintenance of American superiority in the atomic field. Patriotism is not an attribute peculiar to men in uniform. And nothing, indeed, could be more inimical to the safety of the Nation than the idea, born of hysteria, that only the Army can keep a secret, only the Army can shape policies for our defense. The Army has already demonstrated its incompetence in the development of atomic energy. In peacetime, scientists will not, because they cannot, work under its sterile domination. From the viewpoint of expediency, therefore, military control is self-defeating. From the viewpoint of principle, it is thoroughly abhorrent.

COMPARISON OF BRITISH AND

	U. S. Atomic Energy Act	British Atomic Energy Bill
Aims	Assisting and fostering private research and development to encourage maximum scientific progress. Dissemination of scientific and technical information to encourage scientific progress and sharing of information reciprocally re industrial application as soon as destructive uses are controlled. Government research and development; government control of production, ownership and use of fissionable materials for defense and development; to fit into international policy of U. S. Government.	To promote development of atomic energy. To control unauthorized use or production of atomic energy and publication of certain information.
Responsible Officals	Atomic Energy Commission (5 full-time members) appointed by President—5-year terms of office, salaries $15,000 a year (chairman $17,000). General Manager, to discharge administrative and executive functions, appointed by President on recommendation of Commission.	Minister of Supply.
Organization	Division of Research. Division of Production. Division of Engineering. Division of Military Application.	
Advisory Committees	General Advisory Committee on scientific and technical matters, relating to materials, production, research and development. 9 members, all civilians. Appointments for 6 years, must meet at least 4 times yearly. Commission may establish further Advisory Boards.	
Relations with Military	Military Liaison Committee of representatives of Army and Navy. Atomic Energy Commission shall advise and consult with Committee on all atomic energy matters which the Committee deems to relate to military applications. Commission authorized to conduct experiments, research and development in military application of atomic energy and to produce atomic bombs to extent of express consent and direction of President; consent and direction must be obtained once a year at least. Unlawful for anyone to manufacture or possess atomic bomb except under authorization of Commission. Director of Division of Military Application shall be member of Armed Forces.	
Research outside Commission or Ministry	Commission is directed to exercise its powers in such a manner as to ensure the continued conduct and development by private and public scientific institutions in all atomic energy fields. May make contracts, agreements and loans for research without regard to competitive bidding regulations governing ordinary Government contracts; must provide for health protection and inspecting. Must not restrict dissemination of scientific or technical information except to extent already provided by law.	Minister may make grants or loans to any person engaged in production or use of atomic energy or research into relevant matters. Minister may make available under license fissionable materials and plant necessary for research.
Research by Commission or Ministry	Commission authorized and directed to carry on research in all above fields.	Minister empowered to conduct research on production and use of atomic energy.
Production of Fissionable Materials (ownership of production-facilities)	Commission shall be sole government owner of all government interests in fissionable materials and atomic weapons, processes, patents, atomic energy contracts, etc. Commission exclusively to own all facilities for production of fissionable materials except those useful for research and development in specified fields, and which do not have capacity to enable operator to produce fissionable material sufficient for atomic bomb in reasonable time. Commission must produce fissionable materials; may do so by contracts with non-government persons or institutions in government-owned plants. Contractors must submit to inspection.	Minister may take over any existing contract relating to production of atomic energy. Minister has power to manufacture, produce, buy, acquire, store or transport any articles likely to be used in production or use of atomic energy. Minister has power to acquire compulsorily any plant designed or adapted for production or use of atomic energy or research into matters connected therewith, on just compensation.

AMERICAN ATOMIC ENERGY ACTS

	U. S. Atomic Energy Act	British Atomic Energy Bill
Amount of Fissionable Materials to Be Produced	Determined annually by President.	
Control of Fissionable Materials	All fissionable material to be property of Commission. Private owners to be compensated. Possession may be retained by owner on authorization of Commission; title belongs to Commission. Unlawful to export or import any fissionable material or directly or indirectly engage in production of fissionable material outside the U. S.	All fissionable material (prescribed substance) to be acquired, possessed, used, exported or imported under license from Minister. Fissionable materials may be produced only under license from Minister.
Atomic Minerals	Except under license, no one may transfer or own or export atomic minerals once mined. (This does not apply to negligible quantities.) Commission authorized to require reports of ownership on source materials. U. S. reserves for own use all atomic minerals in public lands. Commission may acquire possession on just compensation.	Minister authorized to acquire possession of atomic minerals on just compensation.
Atomic Mineral Survey	Commission authorized to investigate and inspect or by contract explore for atomic minerals.	Minister authorized to conduct surveys of atomic minerals.
Control of By-Product Materials	Commission authorized to distribute free or with charge radioactive by-products for research or development. No by-product materials may be distributed by Commission to foreign governments, persons outside U. S. Govt. jurisdiction or persons in U. S. A. who might be dangerous to U. S. security.	Minister may make by-product materials available under license for research and education or for commercial purposes not involving the production or use of atomic energy.
Industrial and Commercial Production and Use of Atomic Energy	Neither atomic energy, nor atomic energy equipment can be produced, owned or exported without the Commission's license. Where industrial or commercial use of atomic energy has developed to practical level, Commission shall report to President on social, political, economic and international significance and recommend supplementary legislation. No license to be issued until 90 days after such a report to Congress; thereafter unless prohibited by law, Commission is directed to issue licenses on non-exclusive basis and supply appropriate amounts of fissionable materials to licensees.	
International Relations	Any clause of this Act is ineffective insofar as it conflicts with any international arrangements made afterwards. Commission must give maximum effect to any international arrangements hereafter approved by U. S. Government.	
Control of Information	Dissemination of scientific and technical information about atomic energy should be permitted and encouraged, consonant with national security. Until Congress declares that there are adequate international controls over atomic weapons, no information shall be exchanged with other nations concerning industrial use of atomic energy. Restricted data shall include all data on the manufacture or use of atomic weapons, production of fissionable material or use of fissionable material in production of power. Commission may determine what data may be published without adversely affecting common defense and security. Penalty for communication of restricted information with intent to give an advantage to a foreign nation: not more than $20,000 or 20 years' imprisonment. Where there is intent to injure the U. S. A., a jury may sentence to death or life-imprisonment.	Any persons communicating information about plant being used or intended to be used for producing or using atomic energy shall be punished on summary conviction by not more than 3 months' imprisonment or 100 pounds fine; on indictment, not more than 5 years or 500 pounds. The Minister may grant exemptions from this restriction in certain cases.

British Atomic Energy Act Debate . . . .

♦ *A report from London by Edward A. Shils of the Parliamentary debate on the British Atomic Energy Act of 1946, and subsequent press comment.*

THE BRITISH ATOMIC ENERGY ACT of 1946 was adopted by a sparsely attended House of Commons in a debate which lasted for about ten hours including the time spent in Committee on amendments. There was little drama in the debate—except for Prime Minister Attlee who introduced the bill and Mr. Richard Law who accepted it from the Conservative side it was largely a back bencher's affair. Neither passion nor politics played any great role—save perhaps for Mr. Raymond Blackburn's persistent presentation of the case of the Atomic Scientists' Association in the matter of the security provisions (Clause 11) and a proposed Advisory Committee.

[*The British Atomic Energy Act was described in the December issue of the BULLETIN and is compared with the American bill elsewhere in this issue. It was introduced into the House of Commons in May, received its Second Reading on October 8th, and its Third Reading and Amendments on October 11th. It became law on November 6th. The introductory speeches of Mr. Atlee for the government and Mr. Law for the Opposition were reprinted in the December issue.*]

The Conservatives who spoke in the debate all indicated their approval of the bill which empowers the Minister to bring all atomic energy work under Governmental control or surveillance. Mr. Attlee said the step was one which would have been taken by any Government in dealing with such an invention: "This bill has no background of political bearing. It is forced upon us by the very nature of this new invention. We are not introducing a sudden Bill for Nationalization." Commander Noble, the Conservative M.P. who attended the Bikini Test said that atomic energy was above party.

Stress Control

Every one of the twenty-one speakers who participated in the debate of October 8th stressed the necessity of international control of the production and use of atomic energy and almost all justified the far-reaching powers granted the Minister as a necessary precondition for Great Britain's participation in an international control scheme. Several praised the American proposals and some expressed the wish for the British Government to take a more vigorous attitude in pressing for the establishment of international control.

There was widespread acknowledgment of Britain's vulnerability in an atomic bomb war and equally wide awareness of the apathy and indifference of the British public towards the atomic bomb problem.

But however apathetic the British public might be towards the bomb, the M.P.s were so dominated by concern about it that there were relatively few references during the debates to the possible economic benefits which may come from the development of atomic energy. Lord Cherwell's skepticism about these economic benefits seemed to have an influence beyond the bounds of his party.

'Over-Optimistic' U.S. Report

Mr. Wilmot, the Minister of Supply, took note of the American report which stated that "electricity can be generated in the near future at atomic energy stations at a cost comparable with that of using coal or oil fuel. I would hasten to point out that the report stresses the need for finding the solution of a number of still unsolved technical problems of some magnitude. In some quarters the report is thought to be somewhat over-optimistic."

Conservative opposition to the Bill took the form of criticism of the Government for the long delay—from May to October—between the First Reading of the Bill and the Second, and the generally negative and restrictive wording of the Bill.[1] There was a general feeling that the powers to control overshadowed the requirement on the Minister to promote atomic energy research and development.

Lord Cherwell, personal Scientific Adviser to Mr. Churchill during the War, said in the House of Lords on October 23rd: "I was a little uneasy to find so much stress laid upon the powers the Minister has to prevent other people working freely upon this topic and how little stress is laid upon the methods he shall use to promote research and development himself."

Mr. Law presented an Amendment, later withdrawn, requiring liaison between the Minister and the Lord President of the Council (Mr. Herbert Morrison) whose responsibilities include the furtherance of scientific research.

Mr. Atlee showed sensitivity to the possible shortcomings of the Bill in this respect when he explained Clause 10, stating that subsection 2 "places on the Minister the duty of securing as far as practicable by licence, that the necessary minerals, substances and plants are available for scientific and ordinary commercial purposes. We are anxious that research should be encouraged—not merely unimpeded but encouraged, and research is being undertaken by universities and commercial firms under contracts placed and financed by the Government."

The prime concerns of the majority of the interested Members centered about the security restrictions and the Scientific Advisory Committee. Mr. Attlee and Mr. Wilmot in the House of Commons, and Viscount Addison, the Labor leader in the House of Lords, all admitted the difficulty of drafting Clause 11 satisfactorily, in a way which would both provide the necessary security—as long as security is necessary—and the necessary freedom for scientists to do fruitful work.

Indeed so impressed was the Government by the case made by the Scientists and the Parliamentary supporters between the First and Second Readings that

(1) During the discussion in Committee most Conservative participation was confined to attempts to protect owners of property, particularly the owners of minerals which are most unlikely to exist in the United Kingdom. Some Members understood, however, that the relevant kinds of ores were unlikely to be found in the United Kingdom but that they might be found in the Colonies, certainly in the Dominions. When they asked the Minister what was being done to control the mineral resources of those territories they were told rather uncertainly that the Secretary of State for Colonies dealt with the former, and that about the latter copies of the British Bill had been sent to all Dominion governments which were drafting or had drafted parallel bills.

the Minister himself moved an Amendment which substituted for the original first paragraph of the Clause which read:

"Subject to the provisions of this section, any person who without the consent of the Minister knowingly communicates any document, drawing, photograph, plan, model or other information whatsoever which describes, represents, illustrates . . . shall be guilty of an offence under this Act", a new first paragraph which now reads: *"Subject to the provisions of this section, any person who without the consent of the Minister communicates to any other person except an authorized person any document, drawing, photograph, plan, model or other information whatsoever which to his knowledge describes, represents or illustrates ... etc." ("In this section 'authorized person' means in relation to information on any subject to which this subsection applies, a person to whom, by virtue of a general authority granted by the Minister, information on that subject may be communicated.")*

Further Amendment

In response to the scientists' and parliamentary pressure a further Amendment was conceded by the Government, namely, Clause 11 Subsection (2):

"The Minister shall not withhold consent under the last foregoing subsection if he is satisfied that the information proposed to be communicated is not of importance for purposes of defense." The Minister bound himself to exclude "questions of plant for scientific research, for educational work great and small. If it can come outside that definition the Minister frees it entirely from any restriction whatsoever." (Mr. Woodburn, Parliamentary Secretary to the Ministry of Supply.)

An Amendment by Major Vernon requiring the exclusion from security provisions of "fundamental physical or chemical processes on which the operation is based" ("operation" referring to the operation of plants for the production or use of atomic energy) was rejected by the Minister on the grounds that it would be too difficult to define "fundamental physical and chemical processes."

Mr. Blackburn was dissatisfied with the wording of the Government's Amendment and sought to obtain certain reassurances as to the line of interpretation the Minister would take: "If the Minister will tell the Committee today and put it in the record that he will interpret this in such a way that, if possible, he will free the information, and that he will only decide not to free it if he is absolutely satisfied it is reasonably likely to contribute to the production of weapons of destruction then I think the attitude of Scientists and the Committee would change."

To this Mr. Wilmot replied: "If I had sought for words to define the attitude of mind in which I would approach the performance of this duty I could not have improved upon the words which the Hon. Member for Kings Norton (Mr. Blackburn) has just used. I accept them in full and I can assure the Committee that the intention of this is to bind the present Minister and ... his ... successors to withhold nothing which can be safely given."

Only Plant Restricted

The Minister emphasized that in its amended form, Clause 11 allows complete freedom over the whole field unassociated with atomic energy plant. The plant is the restricted subject—not the exchange of basic scientific information.

In relation to Clauses 10 and 11, he agreed "to free the ordinary laboratory tools of the nuclear physicist which have no defense significance by excluding them from the terms of an Order which I may make under Clause 10, and as soon as the Bill becomes law to confer with the physicists and scientists who will be affected with a view to making an Order under Clause 11 to exclude those tools from the categories of plant about which communication is forbidden. . . . I am prepared to confer with the scientists in the drafting of this Order which will let out the normal tools of their profession."

Thus everything other than plant falls outside the Clause and even such plant as is not important for purposes of defense is excluded from security restrictions.

Ultimately the Minister looks forward to the establishment of a body of case law which will guide decisions as to when permission to discuss or communicate certain types of information will be granted and when it will be withheld. As a result of this procedure whole classes of information will be freed from the operation of the Clause.

Major Vernon sought to amend the definition of atomic energy as it relates to the Act by adding "nor processes which cannot involve the production of an ounce of fissionable material and do not operate at energies exceeding one hundred watts," to the definition which reads as follows: "'atomic energy' means the energy released from atomic nuclei as a result of any process, including the fission process, but does not include energy released in any process of natural transmutation or radio-active decay which is not accelerated or influenced by external means."

Scientists' Request Rejected

This Amendment which was introduced at the request of the Association of Atomic Scientists was rejected by the Minister because it did not specify the time in which the substance or energy would be produced and because it was not possible to determine in advance whether such quantities might not yield knowledge which would come under the Bill.

In the end Mr. Blackburn, who led the struggle against Clause 11, said he would vote for the amended Clause, not because he was convinced by the Minister's arguments but because he wanted "to make a gesture in response to the very reasonable and conciliatory attitude which the Minister has adopted." (It may be noted that among the Conservatives who discussed the Bill, only Lord Cherwell criticized the possibly inhibitory effects of Clause 11 on scientific research.)

On the second major point of contention, the critics of the Bill were less successful. Numerous Members, including the Conservative Commander Noble, pressed the Government to establish a Scientific Advisory body and Mr. Blackburn presented an Amendment that "there shall be established a General Advisory Council of not less than seven persons appointed by the Minister to advise him in the exercise of all his powers and duties under this Act." This Amendment had the support of the Atomic Scientists' Association, the Association of Scientific Workers and "the complete unanimity of almost every scientist engaged at either a high or low level on this project."

The arguments for the Amendment

were largely technical, i.e., that the Minister could not administer a scientific project without the aid of scientists, and the precedents of the American and Australian Scientific Advisory bodies were cited. The Labor Members also were inclined to make the Advisory Council a matter of political principle—as a manifestation of democratic participation in the management of an enterprise. Naturally the choice of the members of the Council was to be in the hands of the Minister.

Minister Adamant

The Minister was, however, adamant. His arguments were manifold: 1) he was already in continuous daily consultation with all the scientists who had to be consulted and he would naturally not fail to call on any scientist who could contribute useful advice; 2) if he were to form all the scientists whom he consults into an Advisory Council it would be too large and unwieldy; 3) an Advisory Council would stand between him and Parliament and reduce his accountability before Parliament; 4) the establishment of an Advisory Council would limit his range of consultation.

Despite hard and insistent argument, the Minister would not yield. He offered instead his "assurance that at the present time we have built up a body of advice, flexible, unusual, active, which goes out into every place where knowledge can be found. We have not an advisory committee, but we have panels of advisors on whom we call in the course of the daily work. I am prepared to say most earnestly ... that a system of advisory panels of scientific people will be an integral part of the Department's administration of the matter. I am prepared to undertake that that shall be the practice. The fullest regard will be had, by consultation with these panels, to the opinions of experts—scientific, engineering, constructional and others . . . " The names of the members of the panels will not be published.

In connection with both questions, and especially in connection with the Minister's remarks about his accountability before Parliament, there was a considerable amount of uneasiness about the feasibility of Parliamentary control of atomic energy activities under the Minister's jurisdiction. Due to the rigid security restrictions Members felt that their jealously guarded function of raising questions about Ministerial activity would be greatly confined since any scientist who felt that matters were being managed faultily would fear to speak to an M.P. out of anxiety lest he become enmeshed in security restrictions and the consequent penalties.

Fears Unallayed

The Minister did little to allay these fears, saying that if a scientist wished to speak to an M.P. about the mismanagement of the project, he need only apply to the Minister for permission to do so. This obviously satisfied none of the critics. Likewise the Minister rejected a request for an Amendment requiring periodic reports to the House on progress on the project. To this he offered only reassurances that it was "a timely suggestion and one which we shall be pleased to act upon."

An Amendment submitted by Mr. Mikardo called for sessional reports on the names of licensees and the character of their licences as a means of assuring the House that licences are being issued "for purposes of education and research and for commercial purposes not involving the production or use of atomic energy" as well as to determine whether large private industrial firms are obtaining a disproportionate share of the licences.

The Amendment was unnecessary and undesirable according to the Minister because Members could always put Questions to the Minister when they so desired on such points, and also because compliance with the Amendment might occasionally "disclose the very information which parts of this Bill are designed to protect."

'Grievance Committee' Plan

A proposal was made by Mr. Warbey to institute a Special Parliamentary Select Committee which would act as a Parliamentary guard, under security restrictions, over the project, to whom scientists could come when they had grievances about the administration of the project, and the members of which would have power to subpoena papers and persons. This proposal was passed over without comment.

In a letter to *The Times* early in November Professor R. E. Peierls and P. B. Moon of the Atomic Scientists' Association said that "the Minister's statement will be accepted by scientists as an indication of the spirit in which he intends to use the wide powers that the Bill confers on him. We must, however, echo the regret expressed by members in the House that the Government could not agree to maintain scientific freedom as a legal right rather than by Ministerial order.

"We would have used the word 'concession' to describe the Minister's statements about the secrecy clause and about scientific advisory panels. . . . the statement that advisory panels will be an integral part of the Department's administration is an assurance of the continuance of present practice in limited technical fields, but the Minister did not agree to the principle of an advisory body fully cognizant of the technical situation and having a publicly announced membership."

Press Silence

The lament of the M.P.s about the apathy of the country towards the atomic energy problem was supported by the silence with which the passage of the Bill was received in the press. Except, of course, for *Nature*, and for *Discovery's* elaborate criticism of the Bill and tabular comparison between it and the MacMahon Bill, only the *Manchester Guardian* found this significant event worthy of a leader.

With its characteristic devotion to liberty, the *Guardian* demanded more than good intentions from the Government. Regretfully it wrote: "Can even the methods of isotope separation be discussed, when a chance discovery might revolutionize the methods of dealing with uranium?

"Within a narrow field at least it will probably be agreed that science must accept a limitation of its traditional freedoms, and where it can still exercise them it will be by permission and not by right; but the orders awaited (with some impatience) from the Minister must really narrow the field and more carefully define it than it has been left by the Act. Any suggestion of a kind of Ministerial censorship examining each piece of nuclear research before publication would be fatal."

—Edward A. Shils

United Nations and Atomic Energy . . . .

Atomic Energy Commission Report

IN OUR last issue, we devoted as much as twenty pages to the important developments which took place in the United Nations during the month of December. These developments terminated in the adoption of the disarmament resolution by the General Assembly, and of the first report to the Security Council by the Atomic Energy Commission—a report embodying the well-known "American plan" for the international control of atomic energy.

In contrast, the progress made in January has been much less spectacular.

On January 7, the report of the Atomic Energy Commission was officially relayed to the Security Council. The letter of transmittal stated:

"The Representatives of Poland, in a letter dated December 31 addressed to the Chairman of the Commission, requested that the following observation be included in this letter of transmittal: 'The Representative of Poland considers it to be of paramount importance that the proposals made by the Atomic Energy Commission to the Security Council be of such a character as to command the consent of all permanent Members of the Security Council. This consent is necessary for the adoption by the Security Council. As some points treated in the above-mentioned report do not satisfy this condition, the Representative of Poland in the Security Council will feel free to propose such amendments as may contribute towards promotion of consent among the permanent Members, as well as all other Members of the Security Council.'"

As anticipated in the last issue, the U.S.S.R. did not join Poland in raising objections against "some points" (which is generally understood to mean the veto provision) and thus indirectly signifying general agreement with the report as a whole. On the last day of the debate in the Commission (see Bulletin Vol. 3, No. 1, pg. 15), the Polish delegate suggested that the Commission vote on amendments, so as to permit individual nations to register disagreement with specific points of the report. He then withdrew this suggestion, and it seems likely that this was done because the U.S.S.R. did not see why her own ally should force her hand. The American insistence on immediate vote on the plan as a whole, including the veto clause, gave U.S.S.R. the chance to avoid any commitment to the principles of the control plan, without explicitly rejecting them.

Baruch is Replaced by Austin

ON JANUARY 5, Mr. Baruch and his group of advisers—Messrs. John M. Hancock, Ferdinand Eberstadt, Fred Searls, Jr., Herbert B. Swope, Richard C. Tolman, Thomas F. Farrell, and John Parks Davis—resigned from the UN Atomic Energy Commission. In one of the December meetings, Mr. Baruch spoke eloquently of the extensive and important work still before the Commission. It is therefore certain that he did not resign because he felt that the essential part of the work was completed. There is little doubt that his resignation was due to the expectation that if and when the discussion of the control plan reverts to the Commission from the Security Council, it will contain instructions for some kind of a compromise solution of the veto question, and Mr. Baruch's feelings on this point are known to be too unyielding for him to take a hand in the working out of such a compromise.

The most important parts of Mr. Baruch's letter to President Truman follow textually:

Dear Mr. President:

I have the honor to inform you that the first phase of the United Nations Atomic Energy Commission has been completed. The basic principles have been clearly stated in the commission's report which has been submitted to the Security Council and exposed to the study of the world.

* * *

The active undertaking of the problem of general disarmament by the Security Council, expressed in the resolution of the United Nations General Assembly of Dec. 14, 1946, has created a new situation, in which our hand would be strengthened by an identical representation on the Security Council and the Atomic Energy Commission.

This country is one of the few whose Atomic Energy Commission representative is not the same as the representative on the Security Council.

Former Senator Warren ,Austin, our member in that body, is thoroughly equipped to handle this business as it develops from now on. In fact, he would be handicapped by divided authority.

* * *

So, because of my belief that the work of my American associates and myself is over, and because I am convinced that the job now would be taken over by Senator Austin, I submit my resignation and those of the men who have worked with me—all of whom worked without fee or expense allowance, and at considerable sacrifices to their personal affairs for nine months.

* * *

In working out certain principles to control atomic energy, I make bold to suggest that I and my associates have carried out the primary orders given by you and the Secretary of State at the time of my appointment last April.

I accompany this letter by the full report of the work of the commission. From its text you will understand why I see encouragement as to the eventual outcome for with four of the great powers, permanent members of the Security Council, and six other nations in agreement, the difficulty of gaining unanimity has lessened. While unanimous action is in order, it must not be gained at the expense of principle. To do that would be to lull the world into a false sense of security.

As you and the Secretary of State are aware, in all of our insistence that "there shall be no legal right, by veto or otherwise, whereby a willful violator of the terms of the treaty or convention shall be protected from the consequences of violation of its terms" (the language of the report), we did not attack the general right of veto in the Security Council. We opposed the secondary veto upon enforcement or punishment, called for by a treaty, if the treaty were approved by the Security Council and ratified "by the several nations necessary to assure its success."

As to the primary principles we have sought to enact, they are familiar to you, since they are definitely part of your instructions to us.

* * *

They include, among many others, these most important elements:

(A) the creating of a comprehensive international system of controls and inspections, under the direction of an agency within the framework of the United Nations, by means of an enforceable treaty, subject, of course, to ratification by our Senate:

(B) that the control should start with the production of uranium and thorium when they are severed from the ground and extended through the production of fissionable material, using safeguards at each step, including accounting, inspection, supervision, management and licensing, as may be approved;

(C) that the powers of the agencies should be commensurate with its responsibility, with no government possessing

security, and to recommend procedures for settling or terms of settlement of such disputes or situations (Arts. 33-38). Apart from discussion, the exercise of these powers requires an affirmative vote of seven of the eleven members of the Security Council including all five of the great powers with permanent seats, but any member, even a great power, must abstain from voting if "a party to a dispute" (Art. 27). This may be broad enough to exclude the vote of any member found by a simple vote of seven to have an interest in a dispute or situation before the Security Council.

Limits on Atomic Control

These powers may be of great importance in bringing about a settlement of international disputes. In fact they have already brought about the settlement of a number of such disputes. They do not, however, offer positive assurance against the illegitimate use of atomic weapons.

More important are the powers of the Security Council to determine any "threat to the peace," "breach of peace," or "act of aggression"; to call upon states concerned in any such action to take provisional measures in order to prevent any aggravation of the situation, and to call upon members to enforce economic sanctions or itself to employ military force in case such threat to the peace, breach of the peace or act of aggression has occurred (Arts. 39-42).

Sanctions Unlikely

These provisions appear to be very important. If the members make armed forces available to the Security Council by the special agreements contemplated by the Charter (Arts. 43, 45), and if the Security Council can reach a decision, that body may exert an effective deterrent influence upon any state contemplating breach of its obligations not to use or threaten to use force, or if such breach has taken place to prevent its continuance or success. The procedural provisions, however, make it unlikely that the Security Council will be able to use these powers in a crisis. The exercise of all of these powers requires a vote of seven of the eleven members of the Security Council including therein all of the five great powers (Art. 27). It is, therefore, unlikely that sanctions would ever actually be voted against a great power or its friends.

Discussion as Deterrent

Discussion in the Security Council might be important as a deterrent because it would indicate the probable attitude and action of the powers. Even the greatest power might hesitate to engage in aggression if it discovered that all of the other great powers were vigorously opposed to such action. It is unlikely, however, that a definite decision to employ sanctions would be made except, perhaps, against an ex-enemy power, a non-member of the United Nations, or a member who happened not to have any great power as a friend.

Powers of Members

IMPORTANT POWERS are given to the members of the United Nations. They may bring disputes or situations threatening international peace and security before the Security Council or the Assembly, they may act through regional arrangements consistent with the Charter for peaceful settlement of disputes and for enforcement but only with authorization of the Security Council unless against ex-enemy states of World War II (Arts. 35, 52, 53). These provisions assure that the machinery of the Security Council or the General Assembly will be put into operation at least to the point of discussion.

Right of Self-Defense

Much more important is the provision in Article 51 as follows:

> *"Nothing in the present Charter shall impair the inherent right of individual or collective self-defense, if an armed attack occurs against a Member of the United Nations, until the Security Council has taken the measures necessary to maintain international peace and security. Measures taken by Members in the exercise of this right of self-defense shall be immediately reported to the Security Council and shall not in any way affect the authority and responsibility of the Security Council under the present Charter to take at any time such action as it deems necessary in order to maintain or restore international peace and security."*

A significant feature of this article is that it permits self-defense only after an "armed attack." This considerably reduces the inherent right of self-defense as it has existed in customary international law. It has long been recognized that states would be justified in employing force in case of "an instant and overwhelming necessity of self-defense." This formula, originally stated by Secretary of State Webster in the Caroline case between the United States and Canada in 1842, was quoted favorably by the Nuernberg Tribunal. Such a "necessity" might arise before there had been an "armed attack." Clearly it would be no adequate defense against an atomic attack if states had to wait until the first atom bomb had been dropped by an aggressor.

The Draft Convention for the control of atomic energy proposed in April, 1946 by a Chicago group suggests that this difficulty might be met by including in the Convention an artificial definition of "armed attack" as used in Article 51 of the Charter so as to include any violation of the atomic energy convention. (BULLETIN OF ATOMIC SCIENTISTS, April 1, 1946, Art. 41, p. 13; revised version, International Conciliation, No. 423, p. 405). With such a provision states would be free, in case the veto prevented effective action by the Security Council, to engage in individual or collective defense against any violator of the atomic energy convention.

Summary

To summarize, under the provisions of the Charter atomic armament threatening the peace can be discussed and the pressure of opinion invoked. Counter-measures can be prepared and probable action by the powers can be indicated in the Security Council and the General Assembly, but no forcible action against a great power or its friends is likely to prove possible by decision of the Security Council. Furthermore, members are formally free to act individually or collectively only in case of an actual "armed attack."

Arms Regulation

Mention has not been made of the several provisions in the Charter looking toward a regulation of armaments (Arts. 11, 26, 47, par. 1). Such provisions contemplate additional agreements and steps have already been taken to make such agreements through the General Assembly's resolution of January, 1946 setting up the United Nations Atomic Energy

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Our States and the Opportunity for Peace and Security

. . . . . by Hon. Warren R. Austin

[An address by the Chairman of the U. S. Delegation to the U.N. Atomic Energy Commission at the Eighth Biennial General Assembly of the Council of State Governments at the Edgewater Beach Hotel, Chicago, January 16, 1947.]

OUR OWN FEDERAL UNION is history's most convincing demonstration of the benefits of the close collaboration of individual states for their mutual benefit.

The nations today, like the thirteen original states in the 18th century, are in a position to move forward to an era of peace and development beyond our capacity to visualize; or they can waste their substance in new and greater rivalries and in greater and more terrible wars.

The nations of the world have not delegated sovereign powers to an extent that aproaches the delegation of sovereign powers made by the states to our Federal Union. The basis in international understanding, in common standards and custom and in what may be called international common law does not yet exist. But sovereignty is a relative matter.

The United States is a government of delegated powers, and the powers not delegated to the United States by the Constitution, nor prohibited by it to the states, are reserved to the states or to the people. By far the greater reservoir of power resides in the states and the people.

The United Nations is an association of nations which also has delegated powers. They are far less than those delegated to our Federal Government, but the Charter has a capacity for development, an unfolding quality, that we have not yet begun to explore.

Concepts of Voting Powers

The vast differences in size and importance among the member states of the United Nations, like the lesser differences among states of the United States, gave rise to very great difficulties in determining a suitable system of voting when the organization was formed. In the United States we solved this problem by means of the bi-cameral system. In our Senate the principle of the sovereign equality of states is preserved through the equal representation given to every state. In the House of Representatives, where the voting power of the states is proportionate to their population, the element of equitable weight for large communities is recognized.

When the Charter of the United Nations was drawn up at Dumbarton Oaks and San Francisco, similar concepts and compromises prevailed. The General Assembly is the one principal organ of the United Nations empowered to discuss any matters within the scope of the Charter. Here all are represented equally—one vote for every nation regardless of size. It would be hard to conceive of a more striking demonstration of the sovereign equality of the members of the United Nations.

The composition of the Security Council and the Trusteeship Council, however, is determined in such a way that nations whose size and special responsibilities are outstanding are granted fuller representation. In the Security Council the five great powers primarily responsible for the maintenance of international peace have been granted special voting privileges denied to other member states.

We have recognized both the claim of the small nations to sovereign equality and the claim of the large states to a special status reflecting their larger responsibilities. The result is a structure in which the actions of the whole are implemented by the constituent parts and their representatives.

U.S. Constitution Allows Veto

Let me illustrate this point by reference to our own Constitution. Under Article 2, Section 2 of the Constitution, the power to make treaties is vested in the Federal Government, and it resides there exclusively. Treaties negotiated by the Executive arm cannot become effective, however, without ratification through the concurrence of two-thirds of the Senate, where each state is represented equally with every other state.

In Article 5 of the Constitution, dealing with the amending process, the fundamental importance of the equal representation of the states is revealed in all its clarity. This Article lists a number of methods for amending the Constitution, all of them involving action through qualified majorities of various types—two-thirds or three-fourths of the various units involved.

The last clause of Article 5, however, contains a special proviso, namely: "That no state, without its consent, shall be deprived of its equal suffrage in the Senate."

In other words, under our Constitution, every state possesses a veto over any attempt to alter its equal representation in the Senate. It is worth remembering that the principle of the veto was placed in our Constitution as an essential part of the great compromise that made our Constitution possible and that it remains there to this very day.

Unanimity Principle Important in U.N.

The principle of unanimity, which carries with it the veto power, has a far wider application in the Charter of the United Nations. But it is there for similarly compelling reasons. It is part of the compromise that made possible the delegation of definitive powers by the members to an association of nations based on the sovereign equality of states. In the present circumstances, the unanimity rule of the Great Powers gives that degree of certainty of abolition of war which is practicable. A Charter which did not recognize this principle would not be accepted by the Great Powers.

The "veto" in the United Nations, like the "veto" of the states concerning their representation in the Senate, has a direct bearing on the problem of achieving genuine international control of atomic energy and thus moving toward disarmament. There has been, I think, much misunderstanding of the nature of the so-called "veto" and of its place in collective security.

The "veto" in the Security Council is

the negative use of the requirement contained in Article 27 of the Charter for unanimity of the five permanent members of the Council. This requirement for unanimity among the great powers is soundly based. The large nations that are permanent members of the Council possess the power to keep peace in the world by acting in concert. They also possess the power to destroy the peace. Both powers existed before the Charter. The Charter does not create these powers.

The purpose of the rule is to encourage persistent effort to agree on affirmative action to carry out the purposes and principles of the Charter. The end-product of the unanimity rule, of course, is agreement not forced on any member but one in which agreement is complete by assent.

Thus, the Charter is aimed at assent and at giving spirit to the letter of any agreement entered into. By this rule, the Charter affords the higher degree of certainty that the member nations strong enough to make war will make peace prevail.

U.S. Supports Unanimity Rule

The United States Government, as I made clear at a recent session of the General Assembly, firmly supports this requirement for unanimity. We do not close the door to future changes in the Charter, of course. But we believe that at this stage in the development of the international community the unanimity requirement is essential to our hopes for building up under the United Nations an effective system of collective security. Without the unity of the great powers in essential matters no nation, large or small, can hope for collective security.

Far from legalizing aggression, the use of the veto, either by an aggressor or by another member, to protect the aggressor from the consequences of his crime would in itself be a violation of the Charter. It would be nullification.

You, who are representatives of the governments of the forty-eight states, know well the meaning of nullification in our own history and you know that there is only one certain answer to nullification —war in support of the law and of the union, whether it be the union of our states or the United Nations.

No country can veto itself out of its obligations under the Charter. It can break its obligations. It can nullify the Charter.

What are these obligations? Every Article in the Charter is part of the law. The permanent members are bound legally and morally in the same degree as all other members of the United Nations to "refrain in their international relations from the threat or use of force against the territorial integrity or political independence of any state, or in any other manner inconsistent with the purposes of the United Nations." They are also bound "to take effective collective measures for the prevention and removal of threats to the peace and for the suppression of acts of aggression or other breaches of the peace".

Adherence to the United Nations Charter creates an obligation not to resort to any action contrary to the Charter, including any act of aggression, or to hinder or prevent—by veto or in any other way —the application of the punishments and remedies required in order to uphold and maintain the Charter.

The General Assembly last month adopted a resolution on the principles governing the regulation and reduction of armaments and armed forces which points the way that we must follow.

Its most significant and hopeful aspect is that it reflects unanimous agreement for the first time upon the principle that there must be a system of international control and inspection over all armaments established by treaties or conventions and operating through international control and inspection organs. These organs, while within the framework of the Security Council, are to derive their powers and status, not from the Charter, but from the conventions or treaties under which they are established. The unanimity requirement of the Security Council would not apply in the inspection and control functions of these organs.

Atomic Energy Commission Problems

Meanwhile the Atomic Energy Commission, largely because of the inspired and devoted efforts of Mr. Bernard M. Baruch, has completed the first stage of its work by reaching nearly unanimous agreement (with the Soviet Union and Poland abstaining) on a report embodying recommendations of principles on an atomic control plan. Its consideration by the Security Council is now, in the view of the United States, the first order of business by the Council toward carrying out the Assembly's resolution on disarmament.

One problem that was not discussed in the Assembly and upon which unanimity has not been reached in the Atomic Energy Commission is the problem of punishment for violations of the provisions of an international system of control and inspection.

I believe there is widespread misunderstanding of the relationship to this problem of the unanimity principle. Let me read to you the recommendation of the Atomic Energy Commission relating to punishment for violations of the control system over atomic energy:

"The judicial or other processes for determination of violations of the treaty or convention, and of punishments therefor, should be swift and certain. Serious violations of the treaty shall be reported immediately by the authority to the nations parties to the treaty, to the General Assembly and to the Security Council. Once the violations constituting international crimes have been defined and the measures of enforcement and punishment therefore agreed to in the treaty or convention, there shall be no legal right, by veto or otherwise, whereby a willful violator of the terms of the treaty or convention shall be protected from the consequences of violation of its terms. The enforcement and punishment provisions of the treaty or convention would be ineffectual if, in any such situations, they could be rendered nugatory by the veto of a State which had voluntarily signed the treaty."

Charter Still Holds

That recommendation does not contemplate direct or indirect amendment of the Charter in relation to the unanimity requirement in the Security Council. As Mr. Baruch has repeatedly stated, the United States proposals regarding the control of atomic energy do not attack that general requirement.

In the first place, all the provisions of the treaty establishing the system of control and defining the violations and the punishment therefor must be agreed to in the Security Council by all the permanent members and the required number of other states.

Once adopted by the Security Council the plan must be submitted for approval to the General Assembly. There, it re-

quires approval by a two-thirds vote. After it has been approved by the General Assembly the treaty must be ratified by all the permanent members and the required number of other states.

In the case of the United States, it must have the concurrence of two-thirds of the Senators present.

In the adoption of the plan, the principle of unanimity of the major nations is fully upheld. Once the plan is adopted and the provisions of the treaty become part of the law, then there can be, as the recommendation of the Atomic Energy Commission states, "no legal right by veto or otherwise whereby a willful violator . . . shall be protected from the consequences . . ."

Mr. Molotov said in the Assembly last month:

"It should be quite obvious that the question of the well known principle of unanimity operating in the Security Council has no relation at all to the work of the Control Commissions themselves.

"The Control Commissions are not the Security Council, and therefore there are no grounds whatsoever for saying that any power making use of the 'right of veto' will be in a position to obstruct the course of control. Every attempt to obstruct the control or inspection carried out in accordance with the decisions taken by the Security Council will be nothing other than a violation of the decisions of the Security Council."

Mr. Molotov was not talking about enforcement, but every provision of an international control treaty will have been a decision taken by the Security Council under the rule of unanimity, including decisions providing for appropriate punishments for each type of violation. Therefore, what Mr. Molotov said in relation to inspection and control, might be said equally in relation to enforcement, although he did not say it in that connection.

Any treaty establishing international control of atomic energy or of any other major weapons adaptable to mass destruction should include precise and unequivocal definitions of what acts would constitute violations of its terms and provide for punishment appropriate to the nature of each violation. Provision for such punishment can be made strictly within the letter and spirit of the Charter and without violating the principle of unanimity.

There are a number of avenues to which the Charter points. These should be explored and discussed among the members of the Security Council and the Atomic Energy Commission. I shall suggest some of them tonight.

I have already referred to the general obligations contained in Articles 1 and 2 not to use force in any manner inconsistent with the Charter and to take effective collective action against any threat or act of aggression.

There are also the powers of the General Assembly relating to the maintenance of peace and security. The General Assembly under Article 11 unquestionably has the power to recommend to the Security Council or to the individual member states, or to both, immediate collective action in defense of the peace and of the law.

The treaty's provisions for punishment, while relying primarily on the Security Council, could draw upon these powers in the Charter.

There is also Article 51 of the Charter which states that "nothing in the present Charter shall impair the inherent right of individual or collective self-defense if an armed attack occurs against a member of the United Nations until the Security Council has taken the measures necessary to maintain international peace and security."

The illegal possession of an atomic bomb by any state after the establishment of a system of international control prohibiting the manufacture of atomic weapons could be regarded as an armed attack upon the other signatories of the treaty and the treaty could so declare.

The treaty could also specify categories of similar violations which would be held to be an armed attack within the meaning of Article 51. The responsibility for finding and reporting that such a violation had occurred could be vested in the operating organs as a part of their control and inspection functions and acting by a vote to which the unanimity requirement would not apply.

I believe that we can resolve this problem of enforcement and reach a unanimous understanding that will fulfill completely the position regarding enforcement that the United States has so consistently maintained. We must seek to do so with unflagging patience and persistence in the Security Council and in the Atomic Energy Commission.

The U.N. Charter and the Prevention of War

(Continued from Page 58)

Commission, through the General Assembly's armaments resolution of December, 1946, and through the report of the Atomic Energy Commission on December 31, 1946.

With this material before it, the Security Council may find it possible to carry out its responsibility under Article 26 of the Charter "for formulating with the assistance of the Military Staff Committee, plans to be submitted to the Members of the United Nations for the establishment of a system for the regulation of armaments" including atomic weapons. The Military Staff Committee, composed of representatives of the Chiefs of Staff of the great powers is not likely to have the world point of view necessary to develop an effective policy on this matter.

Possible U.S.S.R. Compromise

This analysis makes it clear that the United Nations Charter in itself does not offer adequate security against atomic attacks. The Baruch proposal, accepted in principal by the United Nations Atomic Energy Commission, is now before the Security Council. The Soviet Union's representative as well as the representative of Poland abstained from voting, but Molotov's statement, made in the General Assembly meeting, indicates that the Soviet Union has accepted the principles of the Baruch report with exception of that eliminating the veto vote on sanctions in the Security Council in case of violation of the Atomic Energy Treaty.

The U. S. memorandum submitted to the Atomic Energy Commission on July 2, 1946 referred to the importance of defining "armed attack" as used in Article 51 of the Charter to include "steps in themselves preliminary" to atomic attack as well as an attack itself. Senator Austin has suggested the possibility of agreement with the Soviet Union on this method of avoiding the difficulty of the veto vote.

The Atomic Bomb and The Veto on Sanctions

♦ A comment on Prof. P. M. S. Blackett's criticism of Mr. Baruch's proposal for the abolition of the veto. . . . *by Edward A. Shils*

A CLEAR and rigorously argued critique of Mr. Baruch's proposal for the abolition of the veto has recently been produced by Professor P. M. S. Blackett,[1] of the University of Manchester. A Fellow of the Royal Society and President of the Association of Scientific Workers which together with the Fabian Society sponsors his pamphlet, Professor Blackett represents a sophisticated, quasi-Communist outlook on the matter. He does not accuse Mr. Baruch of "atomic imperialism" nor does he repeat the usual cliches about adherence to Yalta, the Charter and the unanimity principle.

His main argument is that the attempt to exercise sanctions against one of the two major powers, *i.e.*, the United States or the Soviet Union, would necessarily result in war. Sanctions are defined by him as "the use of armed and/or economic pressure in such overwhelming force as to lead either to (a) the capitulation of the offending nation without war or (b) if war breaks out, to the quick defeat of the offending nation." Sanctions must be effective by restraining the offender without war or by a short "police" type of war. Thus, since neither the Soviet Union nor the United States could be brought to capitulation by such means exercised by the other of the two and all the rest of the powers in the world together, sanctions could not be effective against either of the two major powers. The attempt to use them would precipitate a war and destroy the United Nations as well.

A-Bomb for Sanctions?

Throughout his discussion of sanctions Professor Blackett implies that atomic bombs would be used for such purposes according to the Baruch plan, and that 750 atomic bombs would be necessary to do even the amount of militarily indecisive damage inflicted on Germany during the recent war by 1½ million tons of bombs. Since the equivalent of 750 atomic bombs alone could not knock Germany out of the war, Professor Blackett concludes that they would be even less significant for the far larger Soviet territory. The required number then would be much greater and even then could not be effective without being "integrated with other arms as part of the technique of waging total war. If used against a great power without this integration, and without the combined land, air and sea forces to follow up the bombing attack with invasion in overwhelming force, an initial attack by atomic bombs might well prove as technically successful as the Japanese attack on Pearl Harbor, but as indecisive in the long run." (10)

Sanctions Decisive

Professor Blackett fails to take into account that the atomic bomb attacks would be relatively simultaneous as compared with the sporadic and shifting character of the air raids in World War II which allowed various zones long periods of recuperation and which, furthermore, never could affect more than a very small proportion of the productive power of the nation in any given time period. Atomic bomb attacks on the other hand would be able to lay a wide and fairly seamless blanket of destruction over the major areas of industrial activity in a very short period.

For this reason there does not seem to be great validity in Professor Blackett's defense of the veto on sanctions on the grounds that the sanctions could not be effective even if implemented with atomic bombs. But it should also be said here that Professor Blackett does not at all do justice to Mr. Baruch's proposal when he speaks as if that proposal would make atomic bombs available for sanctions or for any other purpose. Mr. Baruch proposed the abolition of all atomic weapons as part of his scheme.

Throughout his essay, Professor Blackett leaves unmentioned that other possible use of the veto to which Mr. Baruch objects, namely, the use of the veto on the execution of the inspection and operational program of the A.D.A. It is a serious omission—and a disservice to the reading public which will be quite properly impressed by Professor Blackett's scientific eminence and the elegance of his argument —to mislead them into thinking that the apparent success of his argument against the prohibition of the veto on sanctions also dispatches the demand for the prohibition of the veto on inspection and operation activities. The validity of the latter demand still exists even if it is proved that the veto on sanctions should be continued.

If inspection and operations too were to be left subject to the veto, then the central system would never be able to produce that necessary confident and reliable belief in the existence of approximate safety which is the sole merit of the A.D.A. scheme — and the scheme as a whole would be nearly as much a paper fortress as the Soviet proposal for a convention banning the existence and use of the bomb with either national control or no control at all.

The impossibility of the maintenance of veto power in the work of inspection and control organs has since been acknowledged also by Mr. Molotov of the U.S.S.R.

Veto Will Not Prevent War

But to return to Professor Blackett's main thesis: *i.e.*, that the veto on sanctions by the major powers should be maintained because its elimination and the possibility of attempting to inflict sanctions would inevitably end in war. The only questions of importance are a) which arrangement reduces the probability of war and b) which arrangement has the best chance of being accepted by the major powers. The answer to a) should take into account that there are also other and far more

(1) P.M.S. Blackett: The Atom and the Charter. (Science and Social Affairs No. 1: A series of the Fabian Society and the Association of Scientific Workers. London 1946.)

effective factors in the maintenance of peace, especially, the existence of mutual trust; and the answer to b) should be given in the light of the consideration that war can be avoided *only* if there is an effective inspection and control scheme along the lines of the Lilienthal-Baruch proposals.

As regards a) it seems safe to say that any major power or powers which become aware that another major power is evading the scheme's controls, diverting fissionable materials and clandestinely fabricating or preparing to fabricate atomic bombs will be strongly impelled to make war on the evader unless very rapid and very conclusive evidence is provided that the evasion has ceased and its products undone. Not to make war under those circumstances would only prepare the way either for a unilateral atomic war a little later when the evader has built up his stocks, or for capitulation by the adherents to the agreement to the menaces of the evader or else a full fledged atomic armaments race which would shortly turn into a full blown atomic war. In such a situation the responsible leaders of most states would see that their salvation, such as it was, would lie in quick preventive action.

Will Abolition of Veto Help?

Thus the continued veto on sanctions in the Security Council offers little hope of avoiding war, if there are signficant evasions of the control arrangements. The artificial unanimity within the Security Council which the veto enforces would not survive the threat to national safety which will continue to be a paramount value until a world consensus emerges. If this is so, then neither Professor Blackett's desired maintenance of the veto power on sanctions nor Mr. Baruch's desired abolition of it would give any solid prospect of peace once a serious evasion by one of the major powers was detected by one of the other major powers.

The problem then is to examine which arrangement furnishes the lesser incentive for evasion. Here it appears that Mr. Baruch's proposal has the upper hand, since by making sanctions for demonstrated evasions as nearly automatic as humanly decided actions can be, it presents the intending evader with a very high likelihood of severe damage once he is detected.

On the other hand, if the evader is protected by his own or an ally's veto, then he is likely to be lured into evasion by the prediction that his dupes, not being explicitly and formally bound to take sanctioning action automatically, will be struck with indecision and disagreement when confronted with his evasion. The chance of "getting away with it" will thus appear to the intending evader to be greater where the veto persists. Thus the danger of war will be greater where the veto persists simply because the probability of attempted evasions would be higher under that condition.

It may be concluded then that Mr. Baruch's demand is justified not merely by the ethical postulate of equality of States, but by the expediential consideration that it would reduce the probability of attempted evasion and therewith the probability of preventive war. And yet it is still desirable in working for a solution of problem b) to be willing to forego the prohibition of the veto on sanctions. Otherwise we will get nothing accepted, or at least there is such a danger.

U.S.S.R. Adamant on Veto

The Soviet Union, despite its numerous variations in position in a variety of matters in the past two years, has held steadfastly to its position on the veto in the Security Council. Further attempts to sway them from this position threatens only to re-arouse and intensify their anxiety about being outvoted and "ganged up on" by the more numerous adherents of the United States and Great Britain. Moreover, even if the demand for the prohibition of the veto on sanctions is waived by the American representative and the rest of the scheme put forward by Mr. Baruch is "accepted and put into operation, the chief end which we all seek, namely, the sense of well informed and reliable security, will have been achieved for a few years—at least with respect to the atomic bomb."

Moreover, the United States will lose practically nothing by this concession which it would have gained by its adamancy—and it will gain very much. Regardless of whether the veto on sanctions goes or remains, the United States Government would have to decide for itself what to do in the event that another power had been reliably detected in a serious evasion.

The maintenance of peace depends on the non-occurrence of issues and actions which will cause one great power to propose sanctions against the other and which will cause the latter to wish to veto the former's proposal. Our main aim therefore should be to reduce the probability of evasions and although the prohibition of the veto on sanctions might work in that direction, the other safeguards of Mr. Baruch's proposals, strengthened in the direction of a larger measure of A.D.A. operation, would be by far the major sources of protection. If the United States is successful in obtaining the acceptance of the full budget of Mr. Baruch's proposals, including the prohibition of the veto on sanctions, we shall have gained a bit more than if we had obtained acceptance of his proposals without the prohibition on the veto on sanctions; but if we insist on obtaining the acceptance of the prohibition of the veto on sanctions as a condition of our participation in the control inspection system, we might well end with nothing at all.

Respite All We Want

If, on the other hand, we renounce our demands concerning the veto on sanctions and get acceptance of the rest of Mr. Baruch's proposals, then we shall have gained a tremendous first installment on the maintenance of peace. Although not perfect as safeguards if put into effect in the near future, the A.D.A. scheme as put forward by Messrs. Baruch and Lilienthal would lessen fear and they would lessen the consequent impulse to evade the agreement.

All the control of the atomic bomb can provide, regardless of how effective it is, is an indispensable respite, a breathing spell, during which the leaders of great nations can try calmly to come to their senses and having done so, proceed by rational and trustworthy negotiation to reduce to a safe minimum those other anxieties, some baseless and some very substantial, which lie at the root of all our troubles.

Letters to the Editor:

German Scientists in Army Employment

I–The Case Analyzed . . . . . by Samuel A. Goudsmit

A WAR DEPARTMENT release concerning the importation of enemy scientists for employment in military, academic and industrial research over here, has stirred up a lot of comment. The opponents of such a plan point out that most of these enemy scientists were strong supporters of non-democratic doctrines and at heart are still ardent Nazis.

What to do with enemy scientists is unfortunately a more complex problem than opponents of the plan seem to realize. Let us make an attempt to analyze the situation objectively.

American and British scientists have played a prominent role in the war. The result was the recognition that science and scientists are essential to the welfare and strength of a country, in peace time as well as in an emergency. It is immaterial in this respect whether the scientists are working on military problems, on pure research, or on industrial applications.

From this point of view the finding of a number of good enemy scientists is equivalent, militarily, to the finding of a few up-to-date enemy war ships; economically, to finding some enemy gold caches; industrially, to finding a new source of raw materials.

Some of these scientists, especially the technicians, have some actual contributions to make. There are a few fields of technology in which the enemy has gone further than we have. The best known example is the development of the V-2 rocket. It is clear that the men who are responsible for this instrument may well be useful on future problems in this field.

It is natural for the military to be concerned lest such valuable resources might be used eventually against us. The only absolute way to settle this minor and many major problems is the abolition of war. Neither political leaders nor the popular masses have made much progress towards this goal. As one-sided unpreparedness cannot prevent involvement in a war, we are, paradoxically, forced to consider the possibility of an armed conflict while sincerely working towards world peace.

In our dealings with these enemy scientists we must first of all exclude any undemocratic procedures. Keeping them segregated in camps or restricting them to small regions in or outside the territorial United States can be done for a limited period only.

It has been proposed to leave these men in their own place and by rigid control keep them from working on problems of military significance. Such a plan will work for a short time only. German and Japanese scientists are not allowed to work on rockets, jet propulsion, or atom bomb research. As a result, experts in these fields move sooner or later to countries where they are not restricted in their research. It must also be stressed that it is getting more difficult to draw the line between harmless research and research of use in warfare. No matter how strict the controls are now, they will lose their strength in a few years. It is furthermore evident that the defeated countries will make special efforts to gain leadership in fields of science, which is cheaper than maintaining an army.

It appears therefore that our interests are best served by using the skill and potential knowledge of these scientists ourselves. It is known that our allies are doing the same with scientists found in their zone of occupation and those willing to move there. England, Russia and France have the geographical advantage of being near to the occupied territory, nevertheless in many instances the scientists are being moved to the controlling country.

So far we have discussed this problem in a rather cold materialistic way as if these scientists and their knowledge were mere inanimate commodities. If we next consider the human side of the question a number of serious difficulties arise.

It cannot be denied that the majority of these enemy scientists consciously supported an aggressive war against us. Those who opposed the excesses of the Nazi regime, were nevertheless in agreement with its policy of an imperialistic Germany, ruling the world. I know of only very, very few who clearly saw the German errors and acted accordingly. Security "screening" will remove only the actual war criminals, members of the SS and the Gestapo.

It is thus, in most cases, morally wrong for our scientists to collaborate with these imported colleagues. However, moral issues seem to have very little practical effect and only a negligible number will refuse to work with any one of them. It is sad indeed to observe that the few surviving victims of Nazism are mentally and morally starving in Displaced Persons Camps, while these "Heil" shouting scientists are offered privileged positions in our country.

We must expect that these German scientists, once they are here, will continually try to defend the actions of Germany before and during the war. Their background and education will have supplied them with the necessary arguments. The rocket specialists have at times tried to convince some of us that they worked on rockets only for the purpose of scientific research. The German atomic scientists, who failed in their attempt to make a bomb, planned to deny that they ever wanted to make one.

The belief of their superiority is widespread among the German scientists and their selection to work with us will strengthen that belief. Until Hiroshima woke them up German atomic scientists were absolutely convinced that their work was ahead of that of the Allies. In reality they had hardly passed the initial stages of research in spite of an early start of their project.

It is thus obvious that the majority of the imported German scientists will ascribe their selection to their superior achievements. Unfortunately there are many among us who share this opinion with the Germans and are likely to praise highly anything they see or hear about them.

In reality the Germans are not at all

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Letters to the Editor:

German Scientists in Army Employment

II–A Protest . . . . . by H. A. Bethe and H. S. Sack

A few weeks ago, the Army revealed another of its secrets: The employment, in this country, of a considerable number of German scientists and technicians. It has been known for some time that the Armed Forces brought to this country German specialists in order to acquaint the Services with the developments in Germany in the field of jet- and rocket-propulsion, in particular to help in the reconstruction of German equipment.

We may regret that there is a need for such a collaboration, but, as it is the Army's responsibility to keep pace with the modern technical developments, one cannot raise serious objections against it. However, the reports that appeared in the press at the occasion of the official release create an uneasy feeling that the deal was not as straightforward as could be wished. Timid and vague hints concerning possible citizenship, preferred treatment of their families, permanent employment in Universities or industrial laboratories, awaken suspicion that far-reaching concessions have been made in order to gain this collaboration, and that the Armed Forces plan to make use of the services of these scientists beyond the stage of merely bringing our Services "up to date." It is therefore not astonishing that already protests have been voiced, the most significant of them in the form of telegrams to President Truman and the Cecretaries of State and of War, by the "Council Against Intolerance."

It is difficult to get an exact picture of the situation. Only very few facts have been officially and clearly reported. But according to rumors, little attempt is made to train American personnel so as to be able to eventually replace the Germans. It also seems that some are already employed in new research projects, and that at least one University was offered the "assistance" of a German scientist, (which offer was declined by the University staff). It is furthermore contested that these men are in basic knowledge or ability superior to American scientists, and it is rumored that some have only been taken in order to prevent their employment by other countries. Their usefulness for the Army seems to lie primarily in their intensive specialization in restricted fields, which have not during the war received as much attention in this country as in Germany.

It is, however, definite, that promises for permanent stay and employment, as well as for preferred treatment of the families have been given. From some reports, one could gain the impression that these scientists waited eagerly for the Americans and were only too thankful to be allowed to continue their scientific work under the Army's sponsorship. This makes good reading, but it is probably nearer to the truth that they joined the Americans for fear of the Russians and in the hope of material advantages. It is astonishing that they were allowed by us to make conditions regarding their employment.

The question then arises: Is it wise, from a long-range point of view, or even compatible with our moral standards, to make this bargain? Would it not have been better to restrict definitely the stay of these scientists in this country to the absolutely necessary minimum? For it must be borne in mind, that many of them, probably the majority, are die-hard Nazis, or, at least worked whole-heartedly with the Nazis; otherwise they would not have held their high posts so vital for the Nazi war machine. Some German scientists are known to have opposed the Nazis and to have refused unrestricted collaboration; if these scientists wish to come to this country, they will be heartily welcomed by their American colleagues. However, no anti-Nazi action or attitude seems to be connected with the names released in the different press-reports.

Is it possible that the State Department does not object to their becoming citizens? Does it believe that they will turn into good democrats just by receiving favors from us? And if their stay in this country really reforms them, would this not be one reason more for sending them back to Germany so that they can lead their people towards democracy?

In the reports it is mentioned that the presence of these men saved millions of dollars. Does this imply that permanent residence and citizenship can be bought? Is it not more desirable to admit those people who have been longing for freedom and are willing to defend it, than those who, according to press release would work for any government. Hundreds of billions of dollars were spent for a war fought to keep this country free from Nazi-oppression and Nazi-ideology. It does not seem logical now to admit Nazis to important national position in order to save a few hundred million dollars.

These scientists are now working on highly secret projects. Can the Army put any trust in them? Can they be relied on in case of emergency? Even the insurance of screening by the Army can not dissipate the fear that while working for us, they will have in mind the interests of a nationalistic Germany, and that at the critical hour their holding of important positions in our defense-organization might prove fatal. Furthermore, in their strongly indoctrinated hate against the Russians, they may contribute to increase the divergency between Russia and the U.S.A. Can we count on them as having peace as the aim of their efforts?

The admission of these Germans to our country creates another danger, particularly if they be allowed to take employment in industries or Universities. It must be feared that willingly or unwillingly they will be advocates of Nazi methods and ideology. Has this war been fought in order to have Nazi ideology creep into our educational and scientific institutions by the back door? Every effort should be made to prevent exposing American youth in such a direct way to Nazi influence. As far as the staff members are concerned, the mere presence of these Nazis in the laboratories will antagonize many of them and poison the atmosphere of friendly cooperation.

If the Army believes that there are foreign scientists whose unrestricted presence would be a positive asset to this country, then it should have them screened not only by an Army organization and according to Army standards, but also by a civilian group, among which the American scientist should have a decisive voice and which should consult with persons who have known these men previously. Army screening is more concerned with finding out whether there is an immediate danger in their employment, while the civilian screening will scrutinize more thoroughly their former connection with the Nazi regime, and the sincerity of their newly acquired democratic convictions.

Finally, should we not also consider what impression our actions will make on other peoples? These men who had a preferred standing under the Nazis are again offered a preferred treatment. Must that not hurt any German democratic feeling still alive, or now being born? The exaggerated appraisal of their scientific achievements and abilities will foster the self-consciousness and vanity of the Germans, so strongly emphasized by the Nazi regime.

We must admit that more scientists could be used in this country, but we must ask ourselves: Do we want science at any

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The Decision to Use the Bomb

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mentioned except when absolutely necessary, and furthermore, it had not yet been tested. It was of course well forward in our minds, as the memorandum was written and discussed, that the bomb would be the best possible sanction if our warning were rejected.

The Use of the Bomb

The adoption of the policy outlined in the memorandum of July 2 was a decision of high politics; once it was accepted by the President, the position of the atomic bomb in our planning became quite clear. I find that I stated in my diary, as early as June 19, that "the last chance warning . . . must be given before an actual landing of the ground forces in Japan, and fortunately the plans provide for enough time to bring in the sanctions to our warning in the shape of heavy ordinary bombing attack and an attack of S-1." S-1 was a code name for the atomic bomb.

There was much discussion in Washington about the timing of the warning to Japan. The controlling factor in the end was the date already set for the Potsdam meeting of the Big Three. It was President Truman's decision that such a warning should be solemnly issued by the U.S. and the U.K. from this meeting, with the concurrence of the head of the Chinese government, so that it would be plain that *all* of Japan's principal enemies were in entire unity. This was done, in the Potsdam ultimatum of July 26, which very closely followed the above memorandum of July 2, with the exception that it made no mention of the Japanese Emperor.

On July 28 the Premier of Japan, Suzuki, rejected the Potsdam ultimatum by announcing that it was "unworthy of public notice." In the face of this rejection we could only proceed to demonstrate that the ultimatum had meant exactly what it said when it stated that if the Japanese continued the war, "the full application of our military power, backed by our resolve, will mean the inevitable and complete destruction of the Japanese armed forces and just as inevitably the utter devastation of the Japanese homeland."

For such a purpose the atomic bomb was an eminently suitable weapon. The New Mexico test occurred while we were at Potsdam, on July 16. It was immediately clear that the power of the bomb measured up to our highest estimates. We had developed a weapon of such a revolutionary character that its use against the enemy might well be expected to produce exactly the kind of shock on the Japanese ruling oligarchy which we desired, strengthening the position of those who wished peace, and weakening that of the military party.

Because of the importance of the atomic mission against Japan, the detailed plans were brought to me by the military staff for approval. With President Truman's warm support I struck off the list of suggested targets the city of Kyoto. Although it was a target of considerable military importance, it had been the ancient capital of Japan and was a shrine of Japanese art and culture. We determined that it should be spared. I approved four other targets including the cities of Hiroshima and Nagasaki.

Hiroshima was bombed on August 6, and Nagasaki on August 9. These two cities were active working parts of the Japanese war effort. One was an army center; the other was naval and industrial. Hiroshima was the headquarters of the Japanese Army defending southern Japan and was a major military storage and assembly point. Nagasaki was a major seaport and it contained several large industrial plants of great wartime importance. We believed that our attacks had struck cities which must certainly be important to the Japanese military leaders, both Army and Navy, and we waited for a result. We waited one day.

Many accounts have been written about the Japanese surrender. After a prolonged Japanese cabinet session in which the deadlock was broken by the Emperor himself, the offer to surrender was made on August 10. It was based on the Potsdam terms, with a reservation concerning the sovereignty of the Emperor. While the Allied reply made no promises other than those already given, it implicitly recognized the Emperor's position by prescribing that his power must be subject to the orders of the Allied Supreme Commander. These terms were accepted on August 14 by the Japanese, and the instrument of surrender was formally signed on September 2, in Tokyo Bay. Our great objective was thus achieved, and all the evidence I have seen indicates that the controlling factor in the final Japanese decision to accept our terms of surrender was the atomic bomb.*

The two atomic bombs which we had dropped were the only ones we had ready, and our rate of production at the time was very small. Had the war continued until the projected invasion on November 1, additional fire raids of B-29's would have been more destructive of life and property than the very limited number of atomic raids which we could have executed in the same period. But the atomic bomb was more than a weapon of terrible destruction; it was a psychological weapon. In March 1945 our Air Force had launched its first great incendiary raid on the Tokyo area. In this raid more damage was done and more casualties were inflicted than was the case at Hiroshima. Hunderds of bombers took part and hundreds of tons of incendiaries were dropped. Similar successive raids burned out a great part of the urban area of Japan, but the Japanese fought on. On August 6 one B-29 dropped a single atomic bomb on Hiroshima. Three days later a second bomb was dropped on Nagasaki and the war was over. So far as the Japanese could know, our ability to execute atomic attacks, if necessary by many planes at a time, was unlimited. As Dr. Karl Compton has said, "it was not one atomic bomb, or two, which brought surrender; it was the experience of what an atomic bomb will actually do to a community, *plus the dread of many more*, that was effective."

The bomb thus served exactly the purpose we intended. The peace party was able to take the path of surrender, and the whole weight of the Emperor's prestige was exerted in favor of peace. When the Emperor ordered surrender, and the small but dangerous group of fanatics who opposed him were brought under control, the Japanese became so subdued that the great undertaking of occupation and disarmament was completed with unprecedented ease.

A Personal Summary

In the foregoing pages I have tried to give an accurate account of my own personal observations of the circumstances which led up to the use of the atomic bomb and the reasons which underlay our use of it. To me they have always seemed compelling and clear, and I cannot see how any person vested with such responsibilities as mine could have taken any other course or given any other advice to his chiefs.

* Report of United States Strategic Bombing Survey, "Japan's Struggle to End the War"; "If the Atomic Bomb Had Not Been Used," by K. T. Compton, *Atlantic Monthly*, December 1946; unpublished material of historical division, War Department Special Staff, June 1946.

Two great nations were approaching contact in a fight to a finish which would begin on November 1, 1945. Our enemy, Japan, commanded forces of somewhat over 5,000,000 armed men. Men of these armies had already inflicted upon us, in our breakthrough of the outer perimeter of their defenses, over 300,000 battle casualties. Enemy armies still unbeaten had the strength to cost us a million more. *As long as the Japanese government refused to surrender*, we should be forced to take and hold the ground, and smash the Japanese ground armies, by close-in fighting of the same desperate and costly kind that we had faced in the Pacific islands for nearly four years.

In the light of the formidable problem which thus confronted us, I felt that every possible step should be taken to compel a surrender of the homelands, and a withdrawal of all Japanese troops from the Asiatic mainland and from other positions, before we had commenced an invasion. We held two cards to assist us in such an effort. One was the traditional veneration in which the Japanese Emperor was held by his subjects and the power which was thus vested in him over his loyal troops. It was for this reason that I suggested in my memorandum of July 2 that his dynasty should be continued. The second card was the use of the atomic bomb in the manner best calculated to persuade that Emperor and the counselors about him to submit to our demand for what was essentially unconditional surrender, placing his immense power over his people and his troops subject to our orders.

In order to end the war in the shortest possible time and to avoid the enormous losses of human life which otherwise confronted us, I felt that we must use the Emperor as our instrument to command and compel his people to cease fighting and subject themselves to our authority through him, and that to accomplish this we must give him and his controlling advisers a compelling reason to accede to our demands. This reason furthermore must be of such a nature that his people could understand his decision. The bomb seemed to me to furnish a unique instrument for that purpose.

My chief purpose was to end the war in victory with the least possible cost in the lives of the men in the armies which I had helped to raise. In the light of the alternatives which, on a fair estimate, were open to us I believe that no man, in our position and subject to our responsibilities, holding in his hands a weapon of such possibilities for accomplishing this purpose and saving those lives, could have failed to use it and afterwards looked his countrymen in the face.

As I read over what I have written, I am aware that much of it, in this year of peace, may have a harsh and unfeeling sound. It would perhaps be possible to say the same things and say them more gently. But I do not think it would be wise. As I look back over the five years of my service as Secretary of War, I see too many stern and heartrending decisions to be willing to pretend that war is anything else than what it is. The face of war is the face of death, death is an inevitable part of every order that a wartime leader gives. The decision to use the atomic bomb was a decision that brought death to over a hundred thousand Japanese. No explanation can change that fact and I do not wish to gloss it over. But this deliberate, premeditated destruction was our least abhorrent choice. The destruction of Hiroshima and Nagasaki put an end to the Japanese war. It stopped the fire raids, and the strangling blockade; it ended the ghastly specter of a clash of great land armies.

In this last great action of the Second World War we were given final proof that war is death. War in the twentieth century has grown steadily more barbarous, more destructive, more debased in all its aspects. Now, with the release of atomic energy, man's ability to destroy himself is very nearly complete. The bombs dropped on Hiroshima and Nagasaki ended a war. They also made it wholly clear that we must never have another war. This is the lesson men and leaders everywhere must learn, and I believe that when they learn it they will find a way to lasting peace. There is no other choice.

A Protest . . . .
by H. A. Bethe and H. S. Sack

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price? If the American scientists believe in freedom and peace and in their responsibility towards humanity, then they have to show concern about the conditions under which the Army is employing German scientists. Before all, they must request that the mystery shrouding this affair be lifted, that an exact account be given of what has been promised and to whom. It is not wholesome to have rumors going around. If it should turn out that these rumors are ill founded, then the public should be assured so by being given the facts. If, however, there is some truth in them, then the American scientists should join individually, and as a group, in a strong protest.

The Case Analyzed . . . .
by Samuel A. Goudsmit

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superior and in many phases lag far behind American achievements. If we had made the serious mistake of putting our principal technical efforts upon super rockets instead of radar and nuclear research, we too would have produced a V-2-like weapon and probably lost the war. The Germans had surpassed us in work on supersonics, jet propulsion and U-boat development. In some technical fields isolation caused their developments to be along different lines from ours, giving uninitiated the impression of superiority. In a secret report (April, 1943) the president of the German physical society calls the attention of the Government to the fact that "physics is a weapon...of probably decisive importance in the struggle of nations" and that "since the first world war Germany has lost the lead in this field to America."...

An improper evaluation of the scientific value of these Germans by unqualified persons may cause very serious drawbacks, far overshadowing the presumed gains to be obtained from having these men work in this country. It would indeed be unfortunate if for example all our military rocket research or ballistics were permanently dominated by German personnel. Misplaced hero worship may give these men better positions and their opinions more weight than they deserve.

On the other hand, if these imported scientists are gradually absorbed in places in accordance with their true ability and personality, they can fill a need. Among competent American colleagues they will eventually find their proper level. Most of them will turn out to be merely mediocre. The better ones will have a chance to progress. The mediocre ones will continue to preach German superiority and how much better they did things in Germany than in this country. But on the whole they will be harmless.

The problem as a whole shows clearly that scientists and science have lost much of their freedom of action. If this trend goes much further, they may even lose their freedom of thought, thus killing scientific progress and starting a modern "dark age" era.

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The Decision to Use the Bomb

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memorandum saw the first atomic bombs as probable begetters of weapons vastly more terrifying. Mr. Stimson and his advisers were worried—even after the New Mexico test—that the untried aerial release mechanism might fail, and therefore rejected the idea of an advance warning; the authors of the memorandum felt certain that the age of atomic warfare was at hand, and that this called for an entirely new departure in military policy—even at the risk of "losing face" in an unsuccessful demonstration. As it turned out, all bombs exploded as planned and caused even greater destruction than was expected.

The predicted race of atomic arms, as to its inevitable paraphernalia of espionage and counter-espionage, is upon us. So is the predicted wrangling over international control, in an atmosphere of distrust and suspicion. The drive to disperse our cities and industries is yet to begin in earnest, but it will come. And as to the envisioned weapons immensely more deadly than the Hiroshima bomb, we refer to the authoritative article by Professor Teller in this issue. Bombs, each capable of destroying ten square miles of a city, and of producing a radioactive cloud which would wipe out all animal and plant life over hundreds of square miles, are as "real" today as the "20,000 tons of TNT" Hiroshima bomb was in 1939.

The opinions expressed in the editorials and other articles printed in the Bulletin do not necessarily represent the official views of any organization.

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The Atomic Secrets

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were successful in their fabrication. No scientist would have protested—as a scientist—if complete secrecy were preserved as to the plants at Oak Ridge and Hanford.

Unfortunately neither Congress nor public opinion has a clear understanding of the distinction between science and technology, between discoverers and inventors, between the revelation of facts and laws of nature and the construction of plants and gadgets. That plutonium is formed by the absorption of neutrons in uranium, that it forms certain chemical compounds and has certain physical properties, including fissionability, are facts of nature. They are certain to be discovered by scientists in other countries, and their attempted suppression would have hampered American science, causing confusion and unnecessary repetition. But revelations that plutonium can be and was fabricated in large plants, that it can be and was used for filling bombs, was in no way urgent, and an invitation to engineers abroad to try to duplicate processes which they know can be successful. It is ironical that scientists are accused of a desire to reveal "atomic secrets" because they want to publish the properties of a new uranium compound, the nuclear characteristics of a new isotope, or clinical observations of the effects of radiation; while the only important—and from the point of view of scientific progress, unnecessary—revelations concerning the military and industrial aspects of atomic energy, have come from the professed "guardians of atomic security." It was to them that Mr. Lilienthal's remark should have been—and we believe, was—properly addressed.

E.R.

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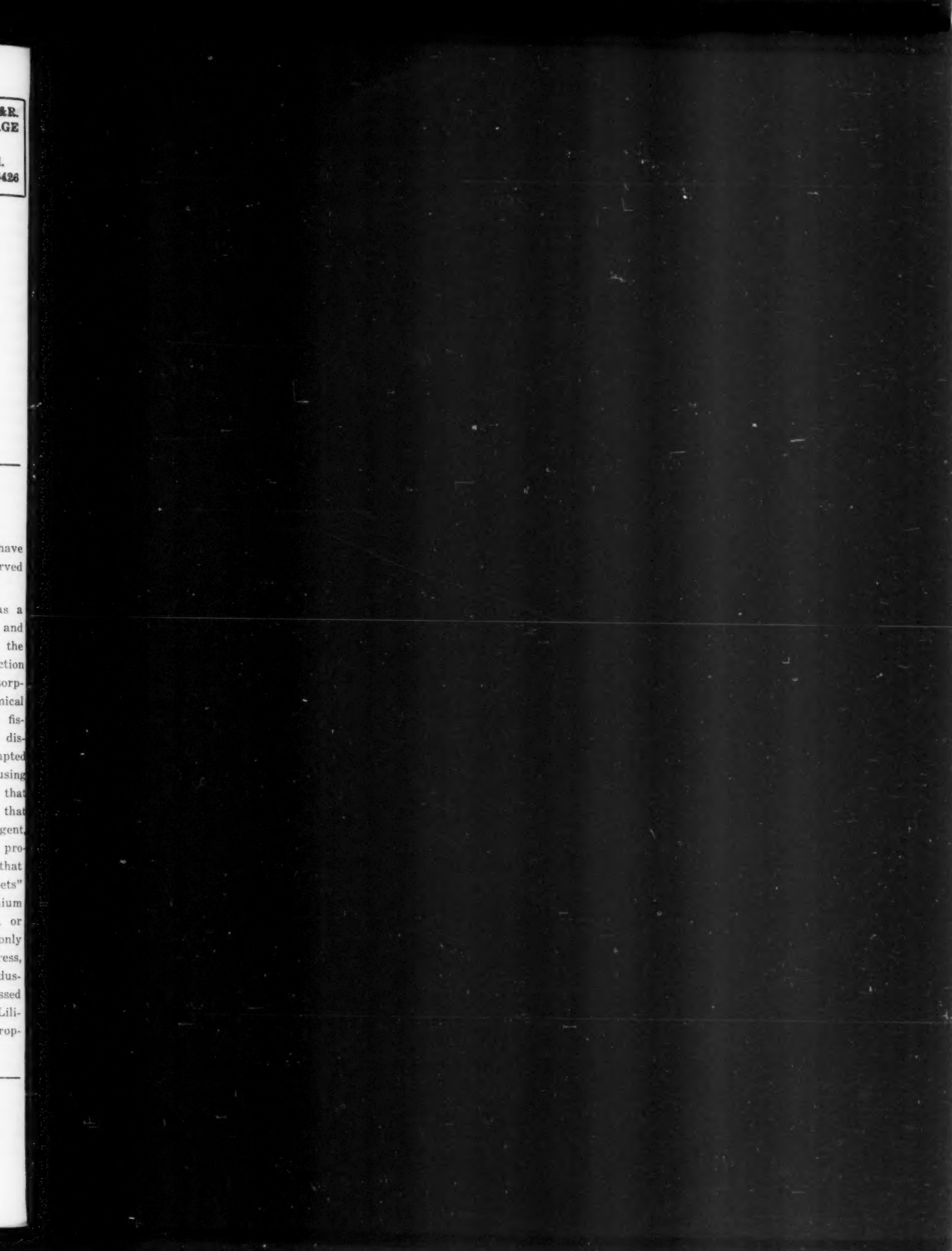
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